THE

ENGINEERING

AND

MINING JOURNAL.

VOLUME XII.

JULY TO DECEMBER, 1871.

OHIO STATE UNIVERSITY

Scientific Publishing Company.

No. 37 PARK ROW,

NEW YORK.

THE ENGINEERING AND MINING JOURNAL.

VOL. XII.—No. 1.—FOURTH SERIES.] NEW YORK, TUESDAY, JULY 4, 1871. [SINGLE COPIES 10 CENTS.

Fair of the American Institute.

THE managers of the 40th National Exhibition of the American Institute have already issued blank forms of application for space, power, etc., at the Exhibition to be held next fall. On the back of the blanks are printed the conditions upon which the application is effected. The blanks may be obtained by application to S. D. TILLMAN, Esq., Corresponding Secretary, American Institute, New York.

We have also received a pamphlet containing a list of the officers and various committees of the Institute, and a prospectus and regulations for the next Fair, which will be held at the Third Avenue Rink. The building will be open for the reception of heavy machinery on the 15th of August, for the general reception of goods on August 28th, and for public inspection on Sept. 7th. The exhibition floors of last year are to be largely increased, and the Institute has decided to award no medal except its great medal of honor, which can only be awarded to the discoverer or inventor of a machine, product, or process, so important in its use or application as to supplant any article previously used for the same purpose, or, at least, to work a favorable revolution in some branch of the useful arts. Instead of the medals and diplomas hitherto granted, each exhibitor will be entitled to a handsome official copy of the Judges' report, made upon the particular merits of the exhibited article, without comparative reference to other articles on exhibition. This we believe to be a much better system than the general presentation of medals for all sorts of manufactures, some of which possessed but little of either novelty or practical value. The acquisition by fair means of the medal proposed will be an honor. Formerly it was simply a disgrace for an exhibitor not to obtain, at least, a diploma and an "honorable mention."

The Enforcement of the Mine Ventilation Act in Pennsylvania.

THE following questions, printed on slips, were handed by Mine-Inspector T. M. WILLIAMS on his first tour of inspection to all the persons in charge of mines in his district, and their written answers were preserved by the Inspector.

1. Have you maps as required?
2. Have you two or more openings at all times available for ingress and egress of the men?
3. Have you sufficient cover over carriage? (if shaft)
4. Have you a spreader chain on cross-head?
5. Have you safety catches, and have you proved them to be good?
6. Have you an adequate brake on hoisting machine whereby persons are hoisted out of the mine?
7. Have you any boy or boys under 12 years of age working inside?
8. Have you commenced driving for a second opening as required by law?
9. Have you a house for men to change in as required by law?
10. Have you the necessary amount of ventilation required?
11. Is it circulated as required in splits, and travel the face of each work place?
12. Have you any standing gas?
13. Have you furnaces at work where there is a breaker over shaft?
14. Have you the air-ways as large as required by law?
15. Have you metal tube?
16. Have you a practical and competent man as mining boss, to put into operation the new mining law in all its requirements?
17. Have you any person looking after the air courses and fire damp as fire boss?
18. Has the amount of air at face of each gangway been measured at least once a week as required by law and report monthly?
19. Is there any danger from old standing stock of gas or water; if so, do you bore ahead as required?
20. Have you any but experienced, competent, sober engineers, whereby men are under their care?
21. Do you allow men to ride upon any loaded car or cage, or more than ten men at one time on any wagon?
22. Do you understand your duty in case of any serious accident or death of one of your men?
23. Have you complied in having your boilers examined every six months, and oftener if needed, by competent men, and made report thereof?
24. Have you all the machinery in and about your breaker fenced off, so that boys may be kept from unnecessary danger?
25. Have you gates to fence off all working as well as all old shafts and slopes, so as to prevent man or beast from falling in?
26. Do you fully understand the meaning of the Mining Act of 1870, the many penalties it imposes for neglect and failure to comply; and further, the right of action by the legal heirs of any person that may lose their lives thereby, as provided in Sect. 24?

DEAR SIR—I hereby notify you to comply with all the requirements of the mining law, passed and approved the third day of March, A. D. 1870, and especially in everything that is herein marked deficient, or consider yourself open and subject to the operations of the law itself, as provided for in many sections, but particularly in sections five and twenty-four.

T. M. WILLIAMS,
Inspector of Coal Mines.

The Viaduct Railroad.

THE last meeting of the directors of the Viaduct Railway Company, as previously announced, was a secret one, but it has since been ascertained that the proceedings were as follows: A majority of the members were present. The President, Judge HILTON, stated that several corps of surveyors were actively engaged in making the necessary surveys of the proposed route, though nothing had been sufficiently matured to be presented to the Board for action, and that he had been under the impression that the Committee from the Chamber of Commerce, appointed at their meeting last week, would have been present on the occasion to lay their views before the Board respecting the extension of the road to the Battery, or some other point at the lower end of the Island, but e had not heard from the Committee in any way.

Mayor HALL said that, under the circumstances, there being no apparent necessity for the meeting of the Board until the Executive Committee was prepared to report upon the subject of route, etc., he should move that the Board adjourn, subject to the call of the President, which was agreed to. The survey spoken of by Judge HILTON will be very accurate and minute. One hundred and fifty engineers are engaged upon it. On the completion of their labors they will make a report to a committee consisting of Gov. HOFFMAN, Mayor HALL, and the Commissioner of Public Works. Considerable misunderstanding seems to prevail outside the city as to the precise nature of the Viaduct Road. It will run, on an average, about 25 feet above the surface of the ground, on brick arches, between transverse iron ribs, supported by heavy iron lateral columns of elegant design, themselves supported on inverted arches of solid masonry built into the ground. The space under the arches will be converted into stores and markets, having entrances on both sides of the line.

The viaduct constituting the "approach" to the East River Bridge, from the depot at Chatham street to the anchor wall, will be 1,336 feet long, and, on account of its great width (85 feet), its construction will involve even more serious problems than that of the Viaduct Railway. The Bridge viaduct will clear the housetops for part of the distance; but in this portion, as well as in the part beyond, it will be very liable to injury from the burning of buildings below. So grave is this difficulty that it is anticipated that it will be necessary to purchase the ground required for a wide avenue, in the line of the Bridge, from Chatham street to the river. Upon this a row of fire-proof warehouses must, it is thought, be built, in such a manner as to make their frame-work, in part, of the viaduct supports. The expense involved in this project will, however, be enormous, and in view of it the remark recently made in the Chamber of Commerce, that "Brooklyn, unaided, cannot build the Bridge," becomes quite intelligible. The Bridge Company appears to have hesitated thus far to grapple with this great question, leaving it for solution in the future. Prominent business men of New York and Brooklyn express the belief that from $20,000,000 to $25,000,000 will be required for the building of the Bridge and its "approaches," or viaducts, together with the purchase of the avenues which will be required, the cost involved in destroying the buildings now standing, and the construction of new and more massive ones. The Brooklyn managers appear to see no way out of the dilemma but by urging the early consolidation of that city with New York, and some confidently assert that this consolidation will long precede the building of the Bridge.

Geological Survey of Colorado.

THE press of Colorado is clamorous for a geological survey of that Territory, at the expense and under the authority of the general Government. They say that the examination made a short time since was cursory and inadequate for the present demands of the mining population. They think that the extensive circulation of a favorable report would have great influence in attracting capital to develop their

mines. They claim the existence of extensive deposits of coal and copper ore, and add that the existence of other base metal ores has been hinted at by prospectors and others who have visited the extreme northwestern part of the Territory.

[From the Journal of the Franklin Institute.]

The Use of Pulverized Fuel.

By Lieut. C. E. DUTTON, U. S. Ordnance Corps.

[CONTINUATION.]

THE economy of high temperatures over low ones, (provided they are obtained without enormous increase in the consumption of fuel, and provided, also, they are not so great as to act destructively upon the materials subjected to them,) is vastly greater than would at first seem, and out of all proportion to the increase. It is an unfortunate fact, that the temperatures at which the operations of heating and puddling are performed, approach near to the extreme temperature attainable in the flame from the grate. After the fire has been in operation a few hours, the temperature of the roof, walls, and bath of metal, will be equal to that of the flame, less the temperature lost by conduction through the walls. At high temperature this loss is known to be very great, and is proportional to the time occupied by the gases in passing from the fire-place to the throat. If the flame have the maximum temperature due to that mode of firing, then the only way in which it is possible to increase the temperature of the bath of metal is to increase the volume of gases passed through the furnace, and the consequent velocity with which they pass; we then diminish the time, diminish the proportional losses of heat and temperature—thus bringing the temperature of the bath nearer to that of the flame. But the proportional increase of temperature thus obtained is much below the proportional increase of fuel expended.* This is illustrated daily by unskillful, ignorant heaters, who send through the hearth immense volumes of flame and gas, under the impression, no doubt, that the effect produced is directly proportional to the quantity of fuel consumed, while, in reality, very little, and sometimes no increase of temperature is obtained. The efficiency of heat, or the rapidity with which its effects are communicated, are related in a complex ratio to the difference between the temperature of the radiant and that of the recipient. For a given difference it varies in an increasing ratio with the absolute temperature of the two elements.

Let us apply these considerations to the various stages of the puddling process. The first stage, where the iron is melted, may be materially shortened by the more intense heat of pulverized fuel. In the second, or boiling stage, time is required to perfect the chemical reactions, and its duration cannot be materially shortened by any amount of heat. Moreover, it is desirable to boil at the lowest temperature consistent with perfect fluidity. But the much greater temperature obtainable by the use of a given supply of coal, in the form of dust, enables us to reduce the rate of consumption very materially, and yet preserve a sufficient temperature. In the third, or balling stage, where the highest temperature is required, we may attain it by a much smaller increase of consumption than would be necessary by the grate-burning method. In the heating furnace, also, the advantages of increased temperature of the flame are equally conspicuous, since they materially shorten the time of an operation, and obviate the necessity of increasing enormously the consumption of fuel, in order to obtain the last increments of heat in the pile.

We may observe here the operation of a general law of thermal physics, that the rapidity of thermal action due to given differences of temperature, is greater at high temperatures than at low ones, and hence, when we add to our command of it, we increase in two ways—we increase the number of our units and augment largely the value of each unit. Hence we account, by means of simple physical laws and familiar facts, for the greatly increased effects of small additions to high temperatures. We are also prepared to consider entirely just and reasonable the claim put forward by Messrs. WHELPLEY & STORER, of a very large economy obtained by their process, in the expenditure of fuel in the operations of the reverberatory furnace. They state that, in a practice extending over eight months, the use of a pulverizer attached to a double puddling furnace has given a general average consumption of 1250 pounds of coal to the ton of puddle bar. It is usual to estimate ordinary puddling at a ton of coal to the ton of iron, in which case pulverized fuel would give an economy of forty-five per cent. of the amount at present used. Large as this claim may seem, every theoretical and practical consideration with which I am familiar, leads me to the belief that it is entirely rational and intrinsically probable.

But Messrs. WHELPLEY & STORER have not only demonstrated in their experimental furnace at Boston, that a much higher temperature is attainable by the use of pulverized fuel than by the grate-burning method, and this with less coal; but they have also obtained, at moderate cost, a temperature comparable to that obtained in the Siemens furnace. This will not appear at all surprising when we come to examine the facts of the case. The temperature of the Siemens furnace is not by any means so high as is usually supposed by those who have never investigated it. By whatsoever method this investigation be conducted, it will readily appear that this temperature cannot be more than 350° to 400° F. above that of the common reverberatory furnace used for heating, and is probably less even than that—say 2500° to 2550° F. This applies, of course, to the ordinary temperature of that furnace, when making steel, which may be melted at about 2500° F. That the temperature cannot be more than slightly above this melting point is clear, from the great length of time required to attain complete fusion. M. CH. SCHINTZ has also shown, by an elaborate calculation of the amount of heat carried into the regenerators and returned to the gases, that this should be the approximate temperature, and has verified his calculations by long and careful experiments. When we compare gas burning with dust burning, we may readily find abundant reason to expect that, by the addition of hot blast, we may easily obtain in the reverberatory furnace a temperature fully equal to the Siemens. Messrs. WHELPLEY & STORER heat the air blast by means of a stove quite similar in principle and general structure to that employed for blast furnaces, and located beyond the throat of their furnace, where it is heated by gases issuing from the hearth. Now, in the Siemens furnace, the fuel is half burned, or more than half burned, in the generators, and the gases purposely cooled down in the great flue, in order to give them propulsion, and to condense the hydro-carbons, which would otherwise clog the regenerators. The heat so dispersed is a total loss, and it includes that derived from the perfect combustion of the greater part of the hydrogen, which has the highest thermal equivalent of any elementary substance; so that the entire heat of the hearth is derived from the combustion of nearly pure carbonic oxide, plus the heat received from the regenerators.*

But pulverized fuel yields to the hearth the entire thermal equivalents of its compounds, which fact must go far towards compensating the effect of the regenerators; and we can easily compensate the remainder by heating the air blast, and this with the same expenditure of fuel as by the Siemens method. I see nothing in this application of hot blast which does not appear to be entirely practicable and simple.

I am able to certify that I have seen the foregoing results amply verified at the experimental furnace of Messrs. WHELPLEY & STORER, at Boston. There were charged upon the hearth 200 pounds of pig iron, which was melted in 17 minutes, to which were added successive charges of wrought iron scrap, amounting to 800 pounds, and the whole was tapped off in two hours and fifty minutes from the time of charging the pig iron. The ingots contained only about 25-100ths per cent. of carbon. The consumption of fuel was 177 pounds per hour of bituminous coal and anthracite slack, mixed in the pulverizer, and 29 pounds of anthracite culm in the fire-place. The hot blast stove was a mere temporary and imperfect affair, at no time above a just perceptible red heat, and yielding a blast certainly not above 450°; whereas, it might be made to yield readily 800° to 900° at the tuyere. Indeed, the temperature at command by this method is limited only by the ability of the furnace materials to withstand fusion, and this temperature is attained by burning a much smaller quantity of fuel than is required in the old reverberatory heating furnace for obtaining a welding heat.

The kind of fuel employed is an important consideration. The best results are obtained with bituminous coal. In common grate burning, anthracite usually gives a more intense heat than soft coal, although its thermal equivalent is theoretically less. But in burning soft coal, the distillation of hydrocarbon vapors from the upper layers of the fire absorbs considerable heat, and as these are subsequently burned only very imperfectly, and with great loss by smoke, much of the thermal power of this coal is lost. In the reverberatory furnace the long flame of bituminous coal is required to fill the hearth, while anthracite would yield only an intense heat in the fire-place, and a flame short and of small intensity in the hearth. With pulverized fuel the full, long, abundant flame, and the great temperature due to the higher thermal equivalent of bituminous coal, are both realized—a fact abundantly sustained by practice, and in itself a proof that the combustion is more complete.

But very good results are attainable with anthracite, the chief objections to it being that it requires more power to pulverize it, and that it does not ignite so readily. A slight admixture of bituminous coal will quicken the ignition very materially. Preparatory to pulverizing, the coal must be reduced to gravel, so as to enter the machine easily. This is done in a breaker or crusher, which is run at very small expense; a single crusher being sufficient for a large mill with many furnaces.

To be continued.

* Let Q= the quantity of heat required to raise the temperature of the gases to 2500°. Say the temperature of the bath is 2200°, in which case 300° is lost by radiation, or Q·12. We desire to raise the temperature to 2300°, in which case the loss would be .08 Q'. This can be effected only by making Q' much larger than Q. The proportion Q' : Q :: .12 : .08 would be insufficient, because the rate of loss at 2300° is greater than at 2200° by about ·06; making the proportions Q' : Q :: ·12×1·06 : ·08, or $Q' = Q\frac{12\times1\cdot06}{\cdot08} = Q\times1\cdot59$. In other words, requiring 59 per cent. more heat. As the temperature of the gases is assumed to be the same in both cases, the increase must be in their volumes, which represents a corresponding increase in the quantity of fuel burning. [The temperatures selected are arbitrary, and for purposes of illustration only; still, the foregoing estimate approximates to the real facts of the case.]

* The heat developed by burning C O to C O² should be greater than by burning C to C O, because in the latter case much heat becomes latent by vaporization—*i. e.*, the conversion of a solid into a gas. The differences of specific heats are also in favor of the former.

Practical Tests of a Theory Concerning Petroleum Deposits.

We make the following extracts from an article published in the *Tribune* of June 8th. The article though somewhat inexact, both in expression and in the use of terms, and not possessing all the novelty claimed for it, is still a valuable addition to our knowledge of the subject, chiefly, however, because the theory which Mr. ANGELL developed by observation was subsequently confirmed by actual boring.

The writer is evidently not acquainted with the scientific literature of petroleum, and hence assumes its non-existence. The fact that scientists who have investigated and written upon the subject, have not practically tested their theories themselves, or induced capitalists and coal operators to make the requisite tests, certainly reflects more upon the latter than the former class.

"It has long been recognized by scientists that what

Mr. ANGELL calls the "profitable part of the oil belt," bore a direct relation to the synclinals and anticlinals in the region, and not to the water courses or any other local accident. The straightness of these lines has also been frequently observed, but nobody before engaged the services of a land surveyor to prove exactly how little they deviated from a straight course, and was afterwards able to test the accuracy of the observations thus made.

"The history of oil developments in this country has been a chronicle of reckless risks and blind speculation. No systematic, intelligent efforts have been made to detect the sources of petroleum; hence the balance in dollars and cents is against Petroleum in its account with Trade. Science has contributed little, almost nothing, to the practical ends of the business. It is a matter of surprise that these wonderful manifestations of nature's workings have received so little attention from scientists, compared with their merits and their needs. Still more a matter of surprise is it that Trade has so neglected their investigation; while it has systematized the oil-traffic above-ground wonderfully. The financial departments of the business are also perfectly organized. An oil-broker can actually handle and transfer a thousand barrels of oil as easily as he could a thousand dollars in money, depositing and checking against the former precisely as the latter. At Oil City, Titusville, and other centers there have been organized Boards of Trade, or Petroleum Exchanges, which keep their members and the trade at large well informed of all that concerns the business *above ground*. Yet none of these organizations have made any effort to collect information, analyze experience, and make even general deductions which would offer the driller the net results of all experiments, and thus reduce the tremendous chances against his success. If every driller had kept such a record as he might, and concerted intelligent efforts had been made to collate these records, the lines of subterranean wealth could be traced on the surface with a very considerable degree of accuracy. The result would be the saving of millions of dollars annually wasted in blind probing for oil deposits, and the reduction of the business to as safe a basis as in any pursuit.

About three years ago Mr. CYRUS D. ANGELL of Forestville, N. Y., embarked on the petroleum sea. He enjoyed a large degree of *luck*—for it was that more than anything else that gave his first ventures success. He soon commenced studying the problem that agitates all shrewd "greasers," namely, the location of the oil belt. He began to collect data bearing on this problem, and to study them by day and night. He conceived and assumed as real this this postulate: Exactly corresponding geological data, at two or more points of oil development, are proof of a continuous belt between those points; or, conversely, an oil belt will manifest the same characteristics everywhere. Taking a series of facts regarding paying wells in one locality, he imagined that, if he could find exactly the same series of facts manifest in another paying locality, he would have two bearings in the same oil belt; and that, at any place between these two points, he could be certain of the same practical results as had followed drilling at the extremes, namely, oil in paying quantities.

The data for which he must find duplicates were these: (1.) The depth from the surface to the different sand-rocks. (2.) Distance between the upper surfaces of the different sand-rocks. (3.) Thickness of the sand-rocks. (4.) Quantity and quality of the oil indications (called "shows") found in the *second* sand. (5.) Color and gravity of the oil produced by the third sand. (6.) Texture and temper of the third sand. I have named those indications in the order of their importance as a basis of general opinion as to territory—of course he would look first and most anxiously for those last named; but as those are all fixed scientific data, it is probable that, for purposes of comparing different wells, all are equally important and decesive. It will be noticed that none of these points of inquiry relate to the more superficial and demonstrative manifestations; they are mainly geological, permanent facts.

Mr. ANGELL started with the data pertaining to his own wells on Belle Island, a little strip of land in the Allegheny river, just below Snubgrass station, on the Allegheny Valley railway, and about twenty-five miles by the river below Oil City. On this island, and also on the bank above (north of) it, was a small but rich oil field; two thick clusters of wells here had for some years been producing. Making himself master of the whole subterranean history of this development, as told by the log-books of the drillers, the specimens of sand and other rocks, and his own observation while making wells on Belle Island, he turned his steps to other developed territory in search of the duplicate "picture in the rocks." Proceeding up the river, the most producing territory he found was at Foster station, nine miles by river from Belle Island. Here, on a little area of about 25 acres, rich wells have been for some years pumping, and probably millions of dollars' worth of oil have been taken out. At Foster he heard a driller's tale, that was the echo to the one he had heard at Scrubgrass. The depth of drill at the first sand, the texture and color of the third sand, the color and gravity of the oil, and the other data, were remarkably identical at these two points, five miles apart by air-line. More than this, Mr. ANGELL was struck with the fact that this similarity of order, composition, and thickness, was not confined to the sand-rocks, but marked also the intervening and overlying strata. The wells at both points were fac-similes each of the other.

As another evidence, Mr. A. computed the depth of drill at the two points to the upper surface of the third sand. Measuring from the surface of the river, and deducting at Foster for the natural descent of the river between the two points, he discovered that the upper surface of the third sand is on a dead water-level at the two points. On his postulate that similarity of rocks indicated identity of belt, he now had two known quantities of his problem. Its solution was still a delicate operation. He knew the belt must be a narrow one, because at the points where the river crossed it (Scrubgrass and Foster) the territory had been by actual development shown to be small. The derricks at these points are huddled as closely together as the necessary operations will admit. On so narrow a belt it would be easy to lose the trail. An error of one degree in the compass would lead off the belt in a few rods of progress.

Mr. A. now employed a civil engineer, and for many months was engaged in running numerous lines between Scrubgrass and Foster. Without detailing all the laborious process and study by which he fixed the line, suffice it to say that he finally settled on a line which passed midway between the *extremes* of development at the two points (Scrubgrass and Foster.) In the course of his research, Mr. A. developed another collateral theory, which materially aided him, and, if it holds good on all belts, is very important. That is: As you digress from the central line of a belt, either way, the third sand grows thinner and the supply of oil less, both finally running out when the limits of the belt laterally have been reached. The nearer the central line the better the territory. This shelving of the rock is from beneath, the upper surface of the third sand being level. This theory was demonstrated by the record of the wells on the belt. He found that running his line midway between the extremes of development, it traversed the derricks of the best wells struck. He was further confirmed in this idea by the fact that his central line between Scrubgrass and Foster passed at one side the celebrated Burning Well, on a bend of the river. This well, several years ago, struck an immense gas vein; the tools stuck in the well, the gas took fire, and for seven years was not extinguished. The owners abandoned it. Its location on the *edge* of what he supposed to be the best width, its failure to produce oil in paying qualities was encouraging.

Having now found the axis of the belt, it was easy to determine its *direction*—the most important point of all. The compass indicated the belt to lie north, 16 degrees east. To confirm all his tests, and "make assurance doubly sure," he now projected his central line on north 16 degrees east *beyond* Foster and across the mountains until he again crossed the tortuous Allegheny, four miles from Foster. There was a development on Porter Island, it being the next development above Foster; all "dry holes" between these and Foster. The line left this island several rods at one side, and it is poor-paying territory. This fact, and the exact similarity of its data with those collected below, were good confirmation of the two theories mentioned. Continuing his line over the mountains five miles further, he again debouched on the river at Reno (two miles below Oil City). Here, to his surprise and satisfaction, his line crossed the best wells on that territory, and the "testimony of the rocks was identical with that of Scrubgrass, Foster, and Porter Island. Following his now sure line, he found himself walking through the heart of the rich oil-fields of Charley Run, Wood Farm, and Petroleum Center. Thus he had traced his belt for *twenty miles* across the country, crossing the Allegheny five times, traversing every paying development on the river, and landing in the centre of the greatest oil-basin in the world. He was content-and kept his own counsel.

Mr. ANGELL had now spent a year and a half of time and several thousand dollars in developing his theory. He could see the strip of oil-rock 1,000 feet beneath him as satisfactorily to himself as if all the overlying strata had been stripped off and the third sand laid bare to his fleshly optics. He proceeded at leisure to gather the fruits of his labor and genius; for it was scarcely less than genius that guided him. I say "at his leisure," for no other operator suspected his great discovery. After considerable shrewd negotiation, he managed to secure from every property-owner on the belt between Scrubgrass and Foster a lease on liberal terms to them as to royalty, etc., but including an option clause for the purchase of the land, in fee, at any time within a year at a stated price. He made similar contracts for several hundred acres on the belt north of Foster, also. Before long he, of course, took his option, and in a short time owned all the territory between Scrubgrass and Foster. This was all he could pay for and manage, and the rest of the leases were suffered to lapse. He now invested $60,000 on faith in his new theory.

The first well was bored one and a half miles back from the river, and from all previous development, It found the third-sand rock and oil at the depth of 1100 feet, and yielded 71 barrels, and is still producing at that rate. The rest of the grand achievement is soon told. ANGELL, in connection with his partner, Mr. PRENTICE (a veteran "greaser"), has on this territory at present sixteen producing wells, ranging in yield from 12 to 400 barrels. The last strike, made three days since, is a "spouter." It threw oil 150 feet high, took fire, and burned up everything destructible around it. When brought under control, it recorded 400 barrels per day. There has been but a single failure to strike oil in paying quantities by them, and that was an experimental well, to test the width of the belt. Every acre of land could be leased by ANGELL & PRENTICE to other parties for $1000 to $5000 bonus, and one-half royalty, the usual royalty being from a sixteenth to a quarter. They, however, grant no leases; they run no risks in sinking wells. They are now putting down sixteen more wells for themselves, with a certainty of results which they would not give any one a dollar to insure. * * * * * *

The belt is less than thirty rods wide; the profitable part of it not half that width. It can be seen, therefore, how easy it is, or *was*, for a man to miss it while prospecting all oildom for a place to "set-in"—or, in petroleum phrase, "wild-catting." His chances were about as fifteen square rods are to the whole area of oil country.

Of course, the triumph of this new development created a furore. This soon spent itself. The fever had nothing to work on. The discoverer owned all the territory, and none was "for sale or to let." Considerable fishing for the belt further north (between Foster and Reno) was done. One of these "wild-cat" parties blundered upon a blaze upon a tree, and, assuming that it was ANGELL's center line, took a lease, and sunk a well. They were upon one of his experimental lines, and not on the center; hence, they found only a thin third-sand and a small yield—three barrels. They abandoned this well, and moved forty rods further *south*, which direction, being at an acute angle with ANGELL's line (S. 16° W.), brought them within twelve feet of the center of his belt. There, on the 28th of last March, they struck a 100-barrel well, which has as yet shown no falling off from that figure. This is called the Milton Well, and is two miles from Reno. A new oil town has since grown up at this point. With a satirical humor for which the nomenclature of Oildom is noted, it is called "Driftwood"—it is 400 feet above high water on the Allegheny!

The traffic growing up in consequence of the development of this portion of the belt open to operators, has caused the erection of a new station on the Allegheny Valley railway, called Prentice, after Mr. ANGELL's partner; it is five miles from Oil City. Wells are now going down thickly in all directions around the Milton well. Many of these will probably miss the belt, and not oil enough to grease a bull-wheel. As the exact direction and location of the belt have not been until now made public, there will be many failures. It would seem that Mr. ANGELL's successful research tends to establish the following principles in oil developments. (1.) That oil lies in belts of more or less unbroken continuity; the latter feature having to be established by tests in each case, and constituting one of the unavoidable contingencies of belt development. (2.) That the general direction of these belts is N. E. and S. W. (3.) That different belts may and probably will differ in characteristics from each other; but the same belt is uniform in its leading physical features throughout. (4.) That these belts do not deviate from a direct line; at least it is not safe to count on deflections or crooks in making investments. (5.) That the under surface of the third-sand rock slopes upward each way from its centre, and therefore the value of a well will depend upon its nearness to the central line of the belt. (6.) That the upper surface of the third-sand rock is absolutely level throughout the belt. Mountains are superadded to it. Therefore there can be no current of oil in the belt, as some have supposed might be the case. (7.) That superficial watercourses have no relation to the oil-courses or belts. Therefore territory on a river is worth no more than that on a mountain-top, other things being equal, except that the drill starts a little nearer the third-sand. (8.) That it is possible to detect an oil belt and stake it out on the surface with a degree of accuracy sufficient for safe business investments. (9.) That when proper efforts shall be made to discover these belts, the whole business of oil production (so-called) will be reduced to a basis in which there will be fewer risks than in a crop of wheat, a sea voyage, or a stock of goods. (Some of these principles are well sustained by the experience of operators generally.) * * *

Since the preceeding was written I have read in a Pennsylvania paper that Mr. JONATHAN WATSON, of Titusville, the veteran and sagacious operator in territory, has added his significant testimony to the value of Mr. ANGELL's discovery by securing for himself 1,400 acres of land south of Scrubgrass, which he will test at once. If Mr. W. can find a single point on the central line of the ANGELL belt, and will bore his wells south 16 degs. west thereof, he will probably find rich territory as far southward as the belt extends. It is easier to ascertain its position thus than by expensive and uncertain test-wells put down at a guess. Every foot of the Angell belt northward of A. & P.'s tract, as far as Petroleum Centre, has either been tested or is under contract to be developed. With Mr. WATSON to follow it southward, we shall ere long have the yet unknown features of the belt developed, viz.: 1. Its extent longitudinally. 2. The continuity of the belt. 3. Its directness, *i. e.*, whether it anywhere deviates from a straight line in the direction marked by Mr. A. Already the minds of wise oil men are reaching out to solve the question whether the oil manifestations of this continent have a common origin; whether there is not a connecting belt running from West Virginia to Canada. We shall know more as the ANGELL belt is carried out. C. E. B.

The Coal Monopolists Again at Work.

IT is time that the consumers of coal began to look to their interests, and gave at least a passing thought as to the chances for high prices of that commodity during the coming fall. It is difficult to arouse interest on a subject relating to the warming of ourselves and houses on a warm July day; yet it seems to us that unless the people wake up and take the "bull by the horns" now, it will be useless to try and control him hereafter. It seems all but incredible that, during the past month, with coal offered at wholesale in the market from $5 50 to $6 50, and at retail from $6 50 to $7 50, little or no trade has been done. Those parties who set up such a howling last winter, cursing and damning the coal monopolists up and down, now sit quietly with their arms folded, and are comparatively unconcerned regarding their prospects for the coming winter. Have they so soon forgotten the trap sprung upon them last December by the railroad and coal companies' combination, by means of which they were compelled to pay from $11 50 to $13 for coal, that should have cost them only half that sum? Have they forgotten the sufferings entailed upon the poorer classes by this scarcity of coal? It would seem so, by the apathy that exists, and a refusal to buy coal now at reasonable rates. Herein lies the difficulty, and if our contemporaries were as ready to urge the consumer to buy coal when it is low, as not to buy when it is at exorbitant prices, they would indeed prove themselves public benefactors. Coal is the only article of commerce and consumption that cannot be re-handled and stored like flour, beef, oil, etc., because every time it is moved, it loses in bulk, and even when not in transition it is said to depreciate in value and weight if exposed to atmospheric influences; besides this, the profit upon it is so small that it would never pay to re-handle it as other merchandise. Hence it must be taken directly from the mine to the retailer, and from him to the consumer, with the least handling possible. *It must be taken as fast as mined*, otherwise the avenues of transportation become blocked, and operations must be suspended. From the uncertainty of the length of time the suspension will last, whether weeks or months, arises a rapid advance in the price of coal. Now, then, it is clearly within the reach of the consumer to prevent these suspensions, by laying in coal when offered at fair figures, as is the case at present. We thus urge upon consumers their duty, because we feel that they are losing valuable time, and, furthermore, assisting these same coal monopolists to play the same game on us this year as they did last.

It is quite evident that the large coal supplying companies have their plans made, and nearly ready to be put in operation, for running up the price of coal to the million consumers, enormously. The six months' strike just ended has been a heavy loss to them, and must be made good in some way. They managed to keep all the mining force from work nearly six months, in order to so deplete the market of anthracite coal as to enable them to realize almost any price they should dictate, and it would now appear as if the work was nearly completed. By our coal reports of the week ending the 23d ult., it appears that the supply of anthracite coal for the season to the 17th is 2,838,527 tons behind last season, and almost the whole force of the entire coal regions fully employed; therefore doing our best, even were the Lehigh region at work, which is not the case, it will be impossible to make up the entire deficiency. Are we, then, unnecessarily alarmed? It would seem the dictate of prudence on the part of families who have means of securing their supply of coal now at about the customary prices, to do so at once, and thus save themselves from being caught again this winter, and from the extortionate prices which these monopolists are preparing for them. B. R. W.

Mining in Colorado.

CENTRAL CITY, COL., June 19, 1871.

TO THE EDITOR: Sir—I mentioned in last weeks letter, that mining districts that had been counted among the dead, were showing signs of life, and it is with real pleasure that I add Spanish Bar district to that class. This is located on Clear Creek, a dozen miles below Georgetown. At Mill City, above Spanish Bar, Col. SAYRES is running a ten stamp mill on, I believe, Alb[illegible] ore. He amalgamates on plates, concentrates with a species of shaking table, and works the concentrated stuff in iron pans. Having but just started, it is too soon to say anything about results. Near there, Messrs. RICHARDSON & Co are working the Capital a promising lode of silver bearing galena. Below Mill City I visited the Hiawatha Tunnel, where they are using the diamond drill, worked by compressed air. They are now in over 200 feet, and estimate the distance to the Hiawatha lode as 1000 feet yet. The rock is extremely hard in the breast, and with hand-drilling the average progress would be less than half what it is with the diamond drill. At present their supply of air is insufficient for working the drill properly, but the company have another compressor on the way out, and when that is attached they expect to cut their way at an increased rate into the mountain. Below the mouth of Fall river, water power mills are now running, viz: Dr. RAY's 24 stamps; THOMAS H. THATCH & Co's ten stamps, and a small mill running two arastras. There is also some prospect of the Whale mill being started. Work is being done on the Shafta, Edgar and several other lodes in that vicinity. The ores generally contain both gold and silver, combined with a large per centage of either copper, or galena, and sometimes both. They require skillful handling in the mill.

Here at Central there is nothing of very great importance to record. The Stevens pan is being tried at the Lexington mill, and Messrs. BECKER, SHULTZ & BAKER are also testing pan amalgamation at their mill. Prof. HILL is erecting another furnace, and otherwise enlarging his works. I have not yet visited the reduction works of Mr. WEST or many of the mills now in operation. Will leave them, and a summary of the condition of the district for next week. Respectfully yours,

F. W. C.

Best Book for Everybody.

THE new illustrated edition of Webster's Dictionary, containing three thousand engravings, is the *best book for everybody* that the press has produced in the present century, and should be regarded as indispensable to the well-regulated home, reading-room, library, and place of business.—*San Francisco Golden Era.*

Alsace and Lorraine.

GREAT works are projected in Alsace and Lorraine, and their execution is to be immediately commenced. In the first rank comes the canalization of the Moselle, which, according to the estimates, will involve an outlay of $6,000,000. A canal is also in contemplation from at Strasburg.

Coal in Austria.

THE production of coal in the Austro-Hungarian monarchy has very considerably increased of late years. In 1848, this production only amounted to 838,000 tons; but in 1858 it had risen to 2,598,800 tons; and in 1868 to 6,199,027 tons. In 1869 there was a still further advance to 6,685,112 tons.

THE COAL TRADE.

B. B. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, June 30, 1871.

WHOLESALE.—During the early part of the week a fair business was transacted in a quiet way. Dealers who had evidently lost faith in the market and really believed that the Scranton sale would upset everything, were offering good coals at low prices, and found ready buyers. Since the sale, however, rates have stiffened up a little, and until the new prices for July are announced by the different large companies but little business will be done.

The principal event of the week was the Scranton Sale. There was not that heavy decline in prices expected by many, but we were disappointed at the low rates obtained. 120,000 tons, the largest amount ever offered at one time by the company, were disposed of. The new large hall, which has been specially arranged for these sales, was densely crowded, and much interest was manifested by those present. Most of the coal was sold, in lots of 100 to 500 tons, to ferry companies, manufacturing concerns and consumers. Very little was bought by the middle-men, as they term the wholesale dealers, who are not lessees or owners of mines. This sale is regarded as of more than usual importance, since the prices obtained will be taken as the standard from which prices for the balance of the season will be regulated. As we stated last week, those parties who have been so lucky as to get coal at this sale, or of the Pennsylvania Coal Company at the rates of their July circular, will have bought at the lowest prices of the season.

Of the 120,000 tons disposed of at the Scranton sale 15,000 were of lump, 15,000 of steamboat, 20,000 of grate, 15,000 of egg, 40,000 of stove and 15,000 chestnut. Lump sold at an average of $4 35; steamboat at an average of $4 43; grate at an average of $4 78½; egg at an average of $4 92; stove at an average of $5 36¼; and chestnut at an average of $4 42½. The following shows the highest and lowest prices obtained, with a comparison of the prices obtained for each grade at the last sale, on the 31st of May.

Tons.	June 28.	May 31.
15,000 lump at	$4 40 @$4 30	$5 00@$4 65
15,000 steamboat at	$4 45 @$4 35	$5 00@$4 70
20,000 grate at	$4 82½@$4 75	$5 00@$5 05
15,000 egg at	$5 00 @$4 90	$5 15@— —
40,000 stove	$5 25 @$5 45	$6 00@$5 77½
15,000 chestnut at	$4 50 @$4 37½	$4 65@$4 60

Average price for all coal sold at May sale was $5 05½ At the June sale the average was $4 71; average decline, 34½ cents per ton. Now when we take into consideration that the new prices announced for Pittston Coal are $1 00 below June rates, and that the circular of the Pennsylvania Company was issued just prior to this sale, we consider the rates obtained as showing a strong market.

We hope that retailers and consumers will need no more urging to buy coal. The season is fast wearing away. Last year was the first in ten years that coal has not advanced month by month during the fall, and that such will be the case this fall there is but little doubt; but on the contrary, we very much fear that there will be an effort made by the large companies to run up prices at a fearful rate, and catch the public in another corner.

CUMBERLAND COAL.—The demand is steady and prices remain firm. There seems to be no diminution in the amount of trade, notwithstanding the low rate at which anthracite coals are selling. There has always been an advantage of at least $1 00 per ton in favor of bituminous coal as a steam generator, and in consequence of this anthracite coal will have to go lower yet before Cumberland coals are affected. We quote them at $6 25 to 6 50 in schooners and $7 50 in barges at New York, alongside.

RETAIL.—The low rates at which coal is being offered now has stirred up some trade, and many families are putting in supplies for the winter. Those who had to pay $13 per ton last year seem to be particularly anxious now to stock up at $6 50 and $7 50. We hope that others will follow their example.

FREIGHTS.—There is no change as yet to report. Next week, no doubt, vessels will be scarcer in consequence of an extra demand for the Scranton sale.

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, June 24, 1871.

	Tons. Cwt.
From Port Carbon	— —
" Pottsville	— —
" Schuylkill Haven	33,772 10
" Port Clinton	2,640 00
Total for week	36,412 10
Previously this year	252,426 00
Total	288,838 10
To same time last year	77,673 15

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending June 24, 1871, compared with week ending June 25, 1870.

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871. WEEK.	1871. TOTAL.
*Phila & Reading R.R.	32,506	1,091,904	116,310	1,341,609
Schuylkill Canal	13,467	77,674	36,413	288,839
Lehigh Valley R. R.	62,106	1,551,248	29,024	629,219
Lehigh & Sus. R. R.	18,917	459,240	33,391	405,307
Lehigh Canal	23,488	173,159	16,100	84,315
Scranton North	15,971	318,359	16,795	81 005
" South	35,215	859,642	44,908	194,827
Penn. Coal Co., rail	25,111	528,731	28,341	123,243
" " " canal	359	6,452	955	2,022
Del. & Hud. Canal Co.	51,800	597,825	39,141	181,610
" " East	3,715	197 028	9,434	89,000
" " West	965	38,206	278	21,078
South	13,083	205 741	9,972	73,687
Shamokin	9,531	155,621	12,643	294,108
Trevorton	1,153	40 112	..	....
Lykens Valley Coal Co.	....	14,222	1,938	38,297
Wyoming South	.....	77,140	....	....
Wyoming North	....	...	....	....
P. N. Y. C. & R. R. Co.	6,051	141,655	10,061	67,556
Williamstown Co'y	6,832	133,247	....	....
Big Lick Col	3,268	21,431	2,623	57,501
Total	313,538	6,688,637	408 327	3,973,223
1870	.....	3,973,223	313,538	
Decrease	.....	2,715,414		
Increase			94,789	

* Less coal transported for Co's use and Bituminous coal.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending June 24, 1871, compared with week ending June 25, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
C. & O. Canal	18,671	213,531	21,960	288,980
B. & O. R. R.	19,778	391,582	30,829	581,160
H. & B. T. R. R.	7,867	148.785	6,534	177,801
Harrisburg & D.	15,452	375,372	16,804	395,277
L. V. R. R.	.....	6,622	4 012	41,737
P. & N.Y.C. & R. Co.	1.607	113 050	7,094	147,666
Cumberl'd BranchCanal	3,798	43,045	5,959	33,186
" Railroad	2.770	46,990	1,205	36,024
Total	69,943	1,338,977	94,397	1751,831
			69,943	1338,977
Increase.			24,454	412,854

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for week ending June 24, 1871, previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt
Total Wyoming	20,398 13	188,122 07
" Hazleton	4,280 11	226,618 11
" Upper Lehigh		442 06
" Beaver Meadow		75,443 03
" Mahanoy	14,805 08	248 353 02
" Mauch Chunk	856 01	5,440 16
" Sullivan & Erie		26 05
Total Anthracite	40,430 13	744,446 10
Bituminous Coal from all sources	4,012 00	41,737 00
Total by rail and canal	44,442 13	786,183 10
Same time last year	88,888 03	1,868,717 10
Increase		
Decrease	44,445 10	1,082,534 00
Forwarded East from Mauch Chunk by rail	29,024 04	629,218 18
Same time last year	62,106 04	1,551,248 03
Increase		
Decrease	33,082 00	922,029 05

RECAPITULATION.

Forwarded East from Mauch Chunk by rail	29,024 04	629,218 18
To N. C. R. R., at Mount Carmel		2,367 13
Forwarded North from L. & B. Junction	10,061 07	67,729 07
To L. & S. R. R. at Packerton for rail	36 10	2,982 16
Delivered at M'h Chunk		441 16
Delivered on line of road above Mauch Chunk	150 08	4,903 08
Delivered above MauchChunk for use of L. V. R.R.	887 15	23,934 09
To L. & S. R. R., at Penn Hav., for railroad		94 10
Do. for canal		7,128 09
At M.Chunk for canal	270 09	5,045 04
Total Anthracite	40,430 13	744,446 10
Bituminous Coal	4,012 00	41,737 00
Total all kinds	44,442 13	786,183 10

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, June 24, 1871.

BY RAILROAD—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons. Cwt.
From St. Clair	42,409 00
" Port Carbon	7,453 09
" Pottsville	1,984 06
" Schuylkill Haven	36,553 04
" Pine Grove	7,198 11
" Tamaqua	18,911 05
" Harrisburg	
" Dauphin	4,448 11
Total	118,948 10

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	12,584 06
" Mill Creek "	2,251 09
" Schuylkill Valley Scales	1 795 19
" Mt. Carbon "	2,210 18
" Cressona "	13,303 01
" Pine Grove "	
" Tamaqua "	2,641 13
Total	34,787 06

SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.

Passing Locust Gap	1,885 02
" Shamokin	2,990 08
" Herndon	
Total	4,875 10

SHIPPED WEST OR SOUTH FROM PINE GROVE.	
Via Schuylkill & Susquehanna R. R.	1,178 15
" Lebanon & Pine Grove Branch	534 15
Total	1,713 10
CONSUMED ON LATERALS.	
From Frackville Scales	890 05
" Mill Creek "	123 05
" Schuylkill Valley Scales	759 14
" Mt. Carbon "	561 06
" Cressona "	117 04
" Pine Grove "	36 00
" Tamaqua "	108 14
Total	2,095 08
LEHIGH AND WYOMING COAL.	
Received via Allentown, E. Penn's Br.	26 00
" " Alburtis, " "	30 04
" " Oreland, G. & N. Br.	226 08
" " Connecting R. R.	
" " Willow Street R. R.	56 11
Total	339 03
BITUMINOUS.	
From Harrisburg	12,355 16
" Connecting R. R., G. & N. Br.	
" Junction R. R.	169 07
Total	12,525 03
COAL FOR COMPANY'S USE.	
Anthracite	3,233 00
Bituminous	317 13
Total	3,550 13

RECAPITULATION.

	Total for Week.	Corresponding week last Year.	
Passing over Main Line and Leb. Val Branch	118,948 10	37,957 01	i 80,991 09
For Shipment by Canal	34,787 06	3,109 14	i 31,677 12
Shipped Westward via Northern Central R. R.	4,875 10	3,542 16	i 1,332 14
Shipped West or South from Pine Grove	1,713 10	129 16	i 1,583 14
Consumed on Laterals	2,095 08	2,032 11	i 62 17
Lehigh and Wyoming Coal	339 03	3,585 04	d 3,246 01
Total Anthracite paying fr'gt	162,759 07	50,357 02	i 112402 05
Bituminous	12,525 03	11,249 13	i 1,275 10
Total of all kinds paying fr'gt	175,284 10	61,606 15	i 113677 15
Coal for Company's use	3,550 13	1,824 13	i 1,726 00
Total Tonnage for Week	178,835 03	63,431 08	i 115403 15
Since Dec. 1, 1870	2121486 16	1650898 01	i 470588 15
Total to date	2300321 19	1714329 09	i 585992 10

SHIPPED BY CANAL.

	Total for Week.	Corresponding week last Year.	
From Schuylkill Haven	33,772 10	2,787 00	i 30985 10
" Port Clinton	2,640 00		i 2,640 00
Total Tonnage per Week	36,412 10	2,787 00	i 33625 10
Since Dec. 1, 1870	252,426 00	75,059 15	i 177366 05
Total to date	288,838 10	77,846 15	i 211099 15

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending June 24—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870. tons cwt.
Wyoming Region	38651 03	25212 15	431139 18	536024 09
Upper Lehigh Region	910 10	3734 13	5526 16	61188 04
Beaver Meadow Region		5725 14		41599 16
Hazleton Region	9 17	12849 02	1822 19	89829 14
Mahanoy Region		88 13		380 17
Tresckow Region			1565 11	
Mauch Chunk Region	6769 07		55561 09	30089 18
Totals	46342 17	47610 17	495616 13	761112 18
Increase				
Decrease	1268 00		265496 05	
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail	33391 02	18917 05	405307 10	459240 01
Forwarded East of Mch Chunk by Canal	6318 10	23332 13	34635 12	176434 11
Delivered at and above Mauch Chunk	1174 02	885 06	26341 10	19423 11
Delivered to L. & B. R. R.at Plymouth Bridge	3187 09	4389 08	11666 00	93528 02
L. V. R. R. at Packer'n	2271 14	86 95	17666 01	12486 13
Totals	46342 17	47610 17	495616 13	761112 18
Of the above there was transported on acc'nt of L. C. & N. Co.	10066 09		69833 14	46743 15
W.-B. C. & L. Co.	24598 07	13644 05	337231 07	233439 16
Totals	34684 16	13644 05	407065 01	280183 11
Increase	21040 11		126881 10	
Decrease				

Shamokin Coal Trade.

For week ending June 24, 1871	12,643 00
Same time last year	9,531 07
Increase	3,111 13
Decrease	
Total amount shipped to date	294,108 01
Same time last year	156,620 14
Increase	137,487 07
Decrease	

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, June 24, 1871.

	WEEK.	SEASON.
North	54,647 07	237,852 01
South	9,972 07	73,686 16
Total	64,619 14	311,538 17
Corresponding time in 1870:		
North	42,915 15	1,096,438 05
South	13,083 07	205,740 14
Total	55,999 02	1,302,178 19
Increase North	11,731 12	d 858,586 04
Decrease South	3,111 00	d 132,053 18
Total increase	8,620 12	d 990,640 02

Delaware and Hudson Canal Company.

The following is a statement of Coal transported by the Delaware and Hudson Canal Co., for the week ending June 24, 1871.

	WEEK.	SEASON.
By Delaware and Hud. Canal,	28,141 00	181,610 00
By Railroad East,	9,434 00	89,000 00
" West,	778 00	21,078 00
" South,	9,972 00	73,687 05
TOTAL TONS,	58,825 00	365,375 00
For the same period last year.		
By Delaware and Hudson Canal	51,800 00	597,825 10
By Railroad East,	3,715 00	191,028 00
" West,	965 03	38,206 00
" South,	13,083 00	206,741 00
TOTAL TONS,	69,563 00	1,038,800 10

Delaware, Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for week ending June 24, 1871.

	Week. Tons Cwt.	Year. Tons. Cwt.
Shipped North	16,795	81,605 7
Shipped South	44,907 19	194,627 7
Total	61,702 19	275,832 14
For the corresponding time last year:		
Shipped North	15,970 18	318,359 4
Shipped South	35,214 12	859,642 8
Total	51,185 10	1,178,001 12
Increase	10,517 9	
Decrease		902,168 18

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending June 24, 1871.

	1871.		1870.	
	WEEK.	YEAR.	WEEK.	YEAR.
By Railway	28,340 11	122,243 4	25,110 13	528,730 16
" Canal	555 8	2,022	359 7	6,451 11
Total	29 295 19	125,265 4	25,470	535,182 7

Decrease 1871, 409,917 4 tons.

Philadelphia and Reading R. R.

Amount of coal transported on the Philadelphia and Reading Railroad during the week ending Saturday, June 24, 1871:

	tons. cwt
From St. Clair	42,419 00
" Port Carbon	7,453 09
" Pottsville	1,984 06
" Schuylkill Haven	36,553 18
" Auburn	8,942 01
" Port Clinton	19,911 05
" Allentown and Alburtis	56 04
" Harrisburgh and Dauphin	16,804 07
Total paying freight	133,114 09
Coal for Company's use	3 650 12
Total for week	136,664 13
Previously this year	1,601,654 17
Total	1,741,319 10
To same time last year	1,475,635 02

Lehigh Canal Coal Trade.

Shipped for the week ending June 23, 1871.

	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.*
Total from Mauch Chunk Region	10740 10	52454 00
" " Beaver Meadow "		7 8 12
" " Mahanoy "	270 09	1611 16
" " Hazleton "		1246 00
" " Upper Lehigh "		
" " Wyoming "	5089 05	28275 00
Total	16100 04	84315 08
Corresponding week last year	23488 07	173128 18
Increase		
Decrease	7388 03	88843 10

Report of Coal forwarded by Pa. & N. Y. R. R. Co., for week ending June 24, 1871.

	ANTHRACITE. Tons. Cwt.	BITUMINOUS. Tons. Cwt
By Rail	10,061 07	7,094 50
Previously this year	57,494 06	146,571 12
Total by Rail		
By Canal		
Previously this year		
Total by Canal		
Total for the year	67,555 13	147,665 12
To the same time last year	141,655 01	113,050 00
Increase	74,099 08	34,615 12
Decrease		

Huntington and Broad Top R. R. Co.

For week ending June 24, 1871	6,534 tons.
Same time last year	7.867 "
Increase	"
Decrease	1 333
Total amount shipped to date	177,801 "
Same time last year	148,785 "
Increase	29,016 "
Decrease	

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday June 24, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C & O. Canal Tons. Cwt.	To B &O. R R. C. Tons. Cwt	Total. Tons Cwt.
1871	21,960 01	30 829 05	52,789 06
1870	18,671 03	19,778 01	38,449 04
Increase	3,288 18	11,051 04	14,340 02
Decrease			

YEAR.

1871	288,979 12	581,160 01	870,139 13
1870	213,530 13	391,581 19	605,112 1
Increase	75,448 19	189,578 02	265,027 01
Decrease			

Cumberland Branch

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B.&O.R.R. Co Tons. Cwt.	Total. Tons. Cwt.
1871	5,956 10	1,206 07	7,163 17
1870	3,797 17	2,770 07	6,568 04
Increase	2,160 13		595 13
Decrease		1,565 00	

YEAR.

1871	83,186 14	36,023 13	119,210 07
1870	43,045 10	46,989 13	90,035 03
Increase	40,141 04		29 175 04
Decrease		10,966 00	

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

SCHUYLKILL.	AT NEW YORK, June 24. R. A.	W. A.	AT PHILADELPHIA. June 24. R. A.	W. A.
Lump	$- —	$- —	5 50	4 50
Steamer	6 00	— —	— —	4 50
Broken	6 00	— —	— —	— to 4 75
Egg	6 25	— —	— —	— to 4 75
Stove	6 50	— —	— —	— to 5 00
Chestnut	5 75	— —	— —	— to 4 25
Pea	— —	— —	— —	— —
LEHIGH.				
Lump, (along side)	6 50	— —	— —	— —
Broken	6 50	— —	— —	— —
Egg	6 50	— —	— —	— —
Stove	6 75	— —	— —	— —
Chestnut	6 25	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 5 50@7 00		— —	— —
New England	" —		— —	— —
Locust Mountain	W. A.	6 50	— —	— —
Honey Brook, Leh'h	W.A.	— —	— —	— —
Spring Mountain	"	— —	— —	— —
Sugar Creek	"	— —	— —	— —
Sugar Loaf	"	— —	— —	— —
Old Comp'y's	"	6 75	— —	— —
Cross Creek	"	— —	— —	— —
Room Run	"	6 75	— —	— —
Girardville	"	—	— —	— —
McMichael	"	— —	— —	— —
Shamokin	"	5 25	— —	— —
Lykens Valley	"	5 75	— —	— —
Broad Top	"	5 25	— —	— —
Hill & Harris	"	5 75	— —	— —
Henry Clay	"	— —	— —	— —
Powelton	"	5 25	— —	— —

*Dealers in these coals may be found in our advertising columns.

Company Coals.

June, 1871.

	L.	Str.	Gra.	Eg.	Sto.	Ches.
Scranton at E. Port	5 00	5 25	5 50	5 75	6 00	5 25
*Pittston at Newburgh	4 50	4 50	4 70	4 80	5 00	4 30
*Lackawana at Rond't	5 20	5 20	5 50	4 75	6 00	5 20
Wilk'b're at Hoboken	5 00	5 00	5 40	4 75	6 00	5 25
Old Co. Lehigh at Pt John'n	6 75	6 00	6 00	6 00	6 50	5 50
Lehigh at Eliz. Port	6 25	5 65	— —	5 50	6 00	5 85

For freights to different points see "Freights."

* To contractors.

Line Prices for Coal June, 1871,

	Lump	Broken	Egg	Stove	Ches't
At Mauch Chunk	4.50	4.00	4 00	4.25	3.50
" Wilkesbarre,	3 75	3.75	3 75	4.00	3.25

Prices at Baltimore—June, 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 25@5 50
Pittston and Plymouth, do	5 25@5 40
Shamokin Red or White Ash, do.	5 25@5 40
Lykens Valley Red Ash, do	— —@5 80
Zerba Valley	— —@— —
Treverton	— —@— —
By retail, all kinds per ton of 2240 lbs.	7 00@7 50
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	— —@4 75
Fairmount and Clarksburg gas, f. o. b. at L. Point	6 00@6 50
BITUMINOUS COALS.	
Kittaning Coal Co.'s Phœnix Vein f.o.b. at Phila	$— —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

June, 1871.

George's Creek and Cumberland f. o. b. for shipping... $4 50@4 60.

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 50@5 75
Lykens Valley	6 00@6 25
Shamokin Red or White Ash	5 50@6 00
Trevorton and Zerba Valley	— —@— —

Prices of Gas Coals.

June, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y. Duty, $1 25, gold

	Coarse	Slack.
Block House	$1 75	@1 75
Gowrie	1 75	@1 75

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal.
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Lingan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	7 10 @7 25
Fairmount Gas Coal Co. of N. Y.	7 50 @— —
Despard Coal Co	$7 50 @— —
Penn	7 75 @8 00
Newburg Orrel Gas	— — @— —
West Fairmount Gas Coal	8 00 @— —
AT PHILADELPHIA.	
Powelton	$7 75
TO NEW YORK.	
Provincial.	
Sidney	$ —
Lingan	—
Cow Bay	—
Port Caledonia	—
Little Glace Bay	—
TO BOSTON.	
Sydney	$ —
Lingan	—
Cow Bay	—
Port Caledonia	—
Little Glace Bay	—

Prices of Foreign Coals.

June, 1871.
Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Coking	$ 9 00@— —
" " Cannel	11 50@12 50
" " House	— —@16 00
" " Orrel	12 00@14 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@17 50
" Cannel, "	18 00@20 00

Per ton 2,000 lbs., delivered.

Foreign and Provincial Freights.

June, 1871.

Foreign.

Newcastle and Ports on Tyne, per keel of 21 1-5 tons	£14 00@£16 00
Liverpool, 5 per cent primage	13s @15s ton.

Freights.—June, 1871.

TO EASTERN PORTS.	Cumberland. From Georgetown.	Cumberland. From Baltimore.	Anthracite. From Philad'a.	Anthracite. From East Port, Port Johnson, and Hoboken.	Anthracite. From Newbury...	Anthracite. From Rondout...
Amesbury			$2 50	$1 75		
Bangor	$2 75		2 90	1 90		
Bath	2 75	2 75	2 50	1 75		
Boston	2 75	2 50	2 25	1 50	180	1 80
Bridgeport	2 25	2 25	1 80	1 00	1 10	1 25
Bristol		2 00	2 00	1 25		1 55
Cambridgeport			2 75	1 75		
Derby			2 00	1 20		
Dighton	2 30	2 35	2 30	— —		
East Cambridge			2 25	1 75		
Fall River	2 25	2 25	2 25	1 25	1 40	
Hackensack			1 75	1 00		
Hartford	2,50		2 30	1 60		
Jersey City		2 00	1 40	50	70	
Middletown			2 25	1 30		
Mystic			— —	1 30		
New Bedford	2 30	2 35	2 00	1 25		
Newburyport	2 75		2 40	1 60		1 35
New Haven	2 25	2 25	1 90	1 00	1 10	2 25
New London	2 25	2 25	1 75	1 10		1 25
Newport			2 00	1 30		1 40
New York	2 00	2 00	1 35	50	70	65
Norwalk			1 80	1 00	1 10	
Norwich	2 50	2 25	2 00	1 20	1 40	1 50
Pawtucket	2 50	2 40	2 30	1 40		1 65
Portland	2 50	2 60	2 30	1 50		2 00
Portsmouth, N.H	2 75	2 75	1 45	1 00		1 50
Providence	2 25	2 25	2 00	1 40	1 50	
Rockport			2 10	1 05		
Saco	2 75		2 25	1 75		
Sag Harbor			1 70	1 20		
Salem	2 60	2 75	2 35	1 50		
Stamford			2 00	1 00	1 10	
Stonington			2 00	1 25	1 20	1 40
Taunton			2 30	1 40		
Warren			— —	1 30		
Washington			1 25			
TO RIVER PORTS.						
Albany		80			55	
Catskill		70			50	
Cocksackie		70			65	
Coeyman's		70			50	
Cold Spring	2 20	70			30	
Fishkill		70	1 60		60	
Haverstraw					40	
Hudson	2 20	2 25			60	
New York					50	
Nyack			1 75		50	
Poughkeepsie						
Rhinebeck					75	
Rondout					40	
Saugerties			1 60		75	
Sing Sing					75	
Stuyvesant					75	
Tarrytown					55	
Troy						
West Point			1 75		60	
Yonkers						

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$1 95
For reshipment	1 85

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 84
C. R. R., N. J., Phillipsburgh to Elizabethport	1 25
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 44

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 81
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 25
Shipping expenses	25
Wharfage	10
Total	$2 44

TO HOBOKEN.

L. V. R. R., Mauch Chunk to Phillipsburgh	$ 84
Morris & Essex R. R. Phillipsburgh to Hoboken	1 45
Shipping expenses	25
Warfage	10
Total	$2 64

TO SOUTH AMBOY.

L. V. R. R.	84
B. & D. R. R. / Cam. & Am. R. R.	1 15
Shipping Expenses, &c.	25
Total	$2 24

PENN HAVEN TO ELIZABETHPORT.

L. V. R R. Penn Haven to Phillipsburgh	99
C. RR. of N. J. Phillipsburgh to Elizabethport	125
Shipping expenses	25
Wharfage	10
Total	$ 2 59

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven..Toll..$1.25 Freight.,90c	$2 15
" Port Carbon	
" Port Clinton..... " 1.17 " 85c	2 02

TO NEW YORK.

From Schuylkill Haven ....Toll..1 25 Freight..$1 90	$3 15

The Rates of Toll on Lump and Steamer Coal will be ten per

cent less than the above rates. The charge will be per ton of 2240 lbs. No charge less than Forty Cents per ton will be made for any distance. A drawback of thirty cents is allowed on all coal passing Fairmount Locks used at Philadelphia and vicinity.

Via Lehigh Canal.

TO PHILADELPHIA.

Lehigh Canal	$ 80
Freight and towage	1 10
Total	$1 90

TO NEW YORK.

Lehigh Canal	$ 50
Morris Canal, Freight, Towing	2 11
Total	$2 61

TO JERSEY CITY.

Lehigh Canal	$ 50
Morris Canal, Freight	2 00
For re-shipment	2 49

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 50
Delaware Division Canal	30
Delaware and Raritan Canal	46
Freight	1 05
Towage	20
Total	$2 51

TO NEW BRUNSWICK.

Lehigh Canal	$ 50
Delaware Division Canal	30
Delaware and Raritan Canal	46
Freight	1 05
Total	$2 31

MARKET REVIEW.

FOR THE WEEK ENDING JULY 1ST, 1871.

IRON.—The late arrivals of Scotch Pig have more fully supplied the market, and as considerable is expected, there is less firmness and rather lower prices; the sales are 100 tons Glengarnock from yard at $32 50; and 200 do. ex ship, $30 50 @ $31. American continues very scarce, and prices are well maintained. The late strike in the coal district of Pennsylvania restricted production, and in the meantime consumers largely used up their usua store so that the country is understood to be unusually bare, both in makers' and consumers' hands. We quote No. 1 $35, No. 2 $33, and Forge $31 @ $32, with sales of 100 tons No. 1 Lehigh Crane at $35; and 200 do. No. 1 Hudson, $34, cash. We notice besides 1,500 tons English Rails at $57, gold; and 350 do. No. 1 Wrought Scrap, ex ship and yard, on terms which we did not learn. Refined Bar is in limited demand as quoted.

COPPER.—New Sheathing is steady at 31c., and Bolts and Braziers 32c., Yellow Metal and Bronze Sheathing 22c., and Y. M. Bolts 24c., net cash. Ingot continues in active request, and the market is rather excited, with a further advance in prices of ½ c.@ ¼c. per lb. Manufacturers and dealers are still the principal buyers, there being a marked absence of the speculative element. The sales embrace about 1,500,000 lb. Lake at 21¼c. @ 21½c. for immediate, and 22c. for forward delivery, the bulk of the business being in parcels for delivery between now and next January.

LEAD.—Since the considerable business of the early part of the week, the market for Pig has been very quiet; we continue to quote ordinary Foreign $6 12½ @ $6 15, gold. Bar has advanced to 9¼c., but Sheet and Pipe are steady at 10¼c., the former price, and Tin-lined Pipe 15c., all less ten per cent. to the Trade.

SPELTER—Has become quiet, and we hear of no sales. Prices are firm for Foreign at 5¾c. @ 6¼c.; best brands Silesian are held at 6¼c., gold. Domestic is quoted at 10c. currency.

STEEL is without change.

TIN.—Pig has become very quiet, and the previous extreme asking prices have not been sustained; we shade our quotations for Straits and English a little, say Straits 33½c., English 33¼c., and Banca 38c., all gold; 200 slabs Straits sold at 33½c., and 5 tons English at a private price. The business in Plates is still pretty large, and all dedescriptions are firm, with an upward tendency. Charcoal Terne and Coke Tin continues very scarce. Sales have been made of 1,250 boxes Charcoal Tin at $8 50 @ $8 75 for I. C.; 1,100 do. Coke Tin, $7 75 @ $7 87½; and 1,100 do. Charcoal Terne, $8 @ $8 12½, all gold.

ZINC.—Sheet continues steady and firm at previous quotations, with a good consumptive demand—10 casks Mosselmann sold from agents' hands, to arrive, at 7¾c., less 4 per cent., gold. Manganese, black oxide, 4½c.; do., per oxide, gray, 5½c.

METALS.

NEW YORK, June 28, 1871.

IRON.—Duty: Bars, 1¼ to 1½ cents ℔ lb; Railroad, 70 cents ℔ 100 lbs.; Boiler and Plate, 1½ cents ℔ lb; Sheet, Hand, Hoop, and Scroll, 1½ to 1¾ cents ℔ lb; Pig, $7 ℔ ton; Polished Sheet, 3 cts. ℔ lb; Galvanized 2½ c.; Scrap Cast, $6; Wrought, $8 per ton.

	Store Prices.
Pig, Scotch No. 1, ℔ ton	31 00@34 00
Pig, American, No. 1	35 00@— —
Pig, American, No. 2	32 00@35 00
Pig, American, Forge	31 00@32 00
Bar Refined, English and American	72 00@73 00
Bra Swedes, assorted sizes (gold)	85 00@100 00
	Store Prices, Cash.
Bar, Swedes, ord'y sizes	105 00@115 00
Bar, Refined, ord'y sizes	75 00@— —
Bar, Refined, ¼ @ 5-16 inch	82 50@— —
Bar, Common	70 00@ 72 50
Scroll	95 00@125 00
Ovals and half-round	95 00@120 00
Band	90 00@ 95 —
Horse Shoe	95 00@100 00
Rods, ⅝ to 3-16 inch	82 50@12 —
Hoop	100 00@140 00
Nail rod	— —@6¾ —
Sheet, Russia, as to assortment (gold)	12 @12¼
Sheet, Single, D. and T. Common	—4½@— 5¾
Sheet, Galv'd, Nos. 14 to 26	12@14 and 30 ℔ ct. dis.
" " Nos. 27, 28, and 29	15@18 and 30 ℔ ct. dis.
Rails, English (gold), ℔ ton	55 00 @57 00
Rails, American, at Works in Pa.	70 00 @72 00

STEEL.—Duty: Bars and Ingots, valued at 7 cents ℔ lb or under, 2¼ cents; over 7 cents and not above 11, 3 cents ℔ lb; over 11 cents, 3½ cents ℔ lb, and 10 ℔ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ℔ lb	— 15 @— 18
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 10 @— 17
English Machinery	— 11½@— 14
English German (2d and 1st quality)	— 12 @— 14
American Blister "Black Diamond"	— — @— 12
American, Cast, Tool do.	— 15 @— 16
American, Spring, do.	— 9 @— 11
American Machinery, do.	— 10 @— 11
American German, do.	— 9 @— 11

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ℔ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ℔ lb	— @— 30
Copper Bolts	— @— 32
Copper Braziers, 16oz. and over	— @— 32
Copper Nails	36 @— 38
Copper, Old Sheathing, &c. mixed lots	— @— 19
Copper, old, for chemical purposes, 14@16 oz.	20 @— 21
Copper, American Ingot	21¼@— 21¾
Yellow Metal, New Sheathing & Bronze	— @— 22
Yellow Metal Bolts	24 @— —
Yellow Metal Nails	— @— 22

LEAD.—Duty: Pig, $2 ℔ 100 lbs.; old Lead, 1½ cents ℔ lb: Pipe and Sheet, 2¼ cents ℔ lb.

Galena, ℔ 100 lbs	$— @— —
Spanish (gold)	6 12½@6 15
German, do.	6 12½@6 15
English, do.	6 15 @6 50
Bar (net)	8 75 @9 00
Pipe (net)	— — @9 25
Sheet	— — @10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ℔ lb.

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign (gold) p. 100 lb.	5 81¼@6 15
Plates, Domestic p. lb.	7 @— 11

TIN.—Duty: Pig, Bars, and Blocks, 15 ℔ cent. ad val.; Plate and Sheets and Terne Plates, 25 ℔ cent.; Roofing 25. ad val.

	Gold ℔ lb.
Banca	— @38
Straits	— @33¾
English	— @33

PLATES.

Fair to Good Brands.	*Gold.*	*Currency.*
I. C. Charcoal, ℔ box	$8 62½@8 75	$10 00 @10 50
I. C. Coke	7 50 @8 00	8 75 @ 9 50
Coke Terne	6 25 @7 50	7 25 @ 8 00
Charcoal Terne	8 00 @8 50	9 25 @ 10 00

ZINC—Duty: Pig or Block, $1 50 ℔ 100 lb.; Sheet, 2½ cts. ℔ lb.

Sheet, No. 9 to 11 Foreign ℔ lb.	8¾@— 9¼

Mining Stocks.

NEW YORK, June 29, 1871.

The Mining Stock Board reports this A. M. sales of 2200 La Crosse at 25 and 300 at 26, which completes the transactions of the Board. Below is the report in full:

GOLD STOCKS.

	BID.	ASKED.
American Flag	15	22
Bates & Baxter	30	—
Benton	—	10
Black Hawk	30	50
Central Gold	7	9
Cons Gregory	41	50
Grass Valley	10	13
Gunnell	17	—
Holman	—	—
La Crosse	25	25
Liberty	—	—
Mariposa prf	—	—
Montana	—	—
Rocky Mount	—	—
Quartz Hill	20	—
Smith & Parmlee	18	45
N. Y. & Eldorado	—	—

Petroleum is about the same as per last report. No sales have transpired. The quotations are as follows:

PETROLEUM STOCKS.

	BID.	ASKED.
Bergen Coal and Oil	15	—
Bennehoff Run	20	—
Blood Farm	—	—
Brevoort	30	—
Bliven Oil	30	—
Buchanan Farm	40	50
Central	64	—
Clinton	10	—
Home	150	190
Phillips Pet	—	—
Rynd Farm	—	20
United Petroleum Farms	35	40
United States	28	34
National	—	—
New York & Allegheny	10	—
Northern Light	60	—
Pithole Creek	30	—
Rathbone Oil	—	—
Second National	24	—
Sherman & B	—	—
Tarr Farm	—	—
Hoffman	—	—

San Francisco Stock Market.

"By Telegraph."

The following is the report of the San Francisco Mining Stock Board, dated California, June 27, the most noticable feature of which is the advance in Belcher, it being now quoted at $240, an advance of $56 per share since our last report. Kentuck seems to have gone beyond its limit, having reacted to $1 55. With the exception of a slight falling off in Crown Point and Imperial, all other stocks on the list are higher.

Savage	47¾
Yellow Jacket	78½
Kentuck	155
Cholar Potosi	80¾
Gould & Curry	121
Belcher	240
Imperial	49
Amador	—
Crown Point	327½
Hale & Norcross	—

Weekly Slate Trade Report—Hydeville.

ROOFING SLATE.

Week ending June 24, 1871.

NAME OF COMPANY.	WEEK.	PREVIOUSLY.	TOTAL FOR YEAR.
Eagle Slate Co	260	2558	2715
Western Vermont Slate Co.	....	306	306
Blue Slate Co	220	1130	1350
The Evergreen Slate Co	188	2145	2323
Forest Mining Slate Co	34	315	339
West Castleton Slate Co	....	....	....
E. D. Billings	70	544	614
R. M. Copeland	....	404	404

Profits of Narrow-Gauge Railways.

THE Greeley (Colorado) *Tribune* says that in building a narrow-gauge railroad from Greeley to the mountains, interest on the bonds could be paid for in the increased price potatoes would sell for—that is, in building the road, potatoes would sell for three cents a pound at least. If not built, they would not bring more than one cent a pound.

A Spider's Engineering.

IN 1830, at Newcastle-on-Tyne, England, a gentleman boasted to a friend that he could introduce to him an engineer of more wonderful skill than ROBERT STEPHENSON, who had just made himself famous by perfecting the railway locomotive. In fulfillment of the boast, he brought out a glass tumbler containing a little scarlet-colored spider, whose beauty, with its bright yellow nest on a sprig of laurustinus, had induced a young lady to pluck it from the bush where it was growing. When brought into the house, it was placed on the mantel-piece, and secured by placing a glass over it.

In a very short time, this wonderful little engineer contrived to accomplish the herculean task of raising the sprig of laurustinus, a weight several hundred times greater than itself, to the upper part of the glass, and attaching it there so firmly that, after forty years, it is still suspended where it was hung by the spider.

In the Bible we read: "The spider layeth hold with her hands, and is in kings' palaces;" but in its glass prison there was nothing for it to lay hold of—no peg, or nail, or beam, on which to fasten its threads. Yet, in a short time the little insect had accomplished its task.

It is believed that this kind of spider always deposits its nest upon trees, and never upon the ground; and this may account for its wonderful effort to raise the branch to the upper part of the glass.

It may still be seen, dead and dry, hanging by one of its threads from the top of its prison house, with its little nest upon a leaf of the laurustinus.—*Boston Journal of Chemistry.*

Kitchen Gas-Works.

THE genius who proposed to make charcoal by filling an iron cylinder with wood, and using the cylinder as a back log in the old-time open fireplace, has lately been eclipsed by a projector who aims to manufacture illuminating gas by means of a retort, which may be placed "in a kitchen-range or any ordinary stove." The retort is made of circular form, of iron, fire-clay, or other suitable material, and so arranged as to be surrounded by the fire. Being filled with wood, resin, oil, or other gas-producing substances, the gas is rapidly given off, and passes by a pipe into another partially filled with water, below which the mouth of the outlet pipe dips as in the ordinary hydraulic main. To avoid accidents from any undue pressure in the main from an unusual pressure of the gas, the main is furnished with a safety-valve, the rising of which permits a portion of the gas to escape into a pipe which leads into the chimney with which the pipe or flue of the stove connects. The idea is ingenious, but the kitchen gas-works provided thereby will hardly supersede the ordinary methods of illumination in houses and apartments.

DEPARTMENT OF POPULAR SCIENCE.

Feeling and Touch.

If you remember our conversation on this topic, madam, you have in mind the distinction between the sensations of common feeling (pain, shuddering, tickling, pleasure, hunger, thirst,) and those of touch (pressure, temperature). All sensations are transmitted to the brain by means of the nerves, and all nerves are, so far as we can perceive, alike, except in the apparatus at their extremities. The nervous current can be excited in various ways. We may lay a nerve bare in a living animal, and produce sensation in it by wounding, pressure, heat, cold, electricity or chemical irritants. But light, sound, odor and taste do not appear to affect the nerves except through the appropriate organs at their extremities. Thus even the sensitive optic nerve is not irritated when the sun is allowed to shine upon its fibres. Hence we conclude that certain agents irritate the nerves indirectly, being transformed into nerve-force in some obscure manner by the terminal apparatus.

If we compare the nerves to telegraph wires, transmitting messages, we must distinguish between the organs which receive at one end, and those which register in the brain at the other end, the waves of sensation. The exterior apparatus is fitted to the cause, and the interior to the effect, of sensation. Thus sound affects the auditory organs only; but any irritation of the auditory nerve causes the sensation of sound. The eye is sensitive to light, which can be transformed into nerve-force by the optical organ only; yet consciousness, sitting like an operator at the receiving instrument in the brain records as light everything that comes over the optic nerve. Thus an electric shock produces the sensation of light, and a violent concussion on the head may have the same effect, as when your little Johnny, madam, fell down stairs, and thereupon "saw stars" in the daytime.

But there is another set of nerves, called the nerves of motion, which receive impulses from within, and produce exterior effects. They start in the brain, and terminate in the muscles. Now, both kinds of nerves can carry currents either way; but they are ordinarily confined to their respective functions, just as two railway tracks may be traversed in either direction by trains, though, in fact, the up-trains all take one track, and the down-trains the other. This difference in the functions of nerves, however, arises from the lack of proper instruments at the extremities to produce or receive reverse currents. Thus we know that the optic nerve can conduct a current from the brain to the eye, though we also know that in life no current is conducted in this direction, because at the central extremity of the nerve there exists no apparatus of excitation; and even if we could irritate that extremity, the outward current must remain without effect, because the eye itself is not adapted to translate it into consciousness.

Now, the nerves of feeling run from all parts of the body to the brain. Their outer extremities are capable of receiving the sensations of pressure and temperature, which we call, specifically, touch. But, if we irritate any other part of such nerve, we produce in the brain only the "common feeling"—pain. Thus the nerves of sensation which terminate in the skin of a part of the finger unite into one stem, which, is the part of the elbow called the "funny-bone," and deep under the outer skin. Now, if we dip the finger into cold water, we feel a sensation of cold; but if we immerse the elbow in cold water, we feel, first, the sensation of cold, from the nerves of the skin, and, after some moments, when the cold has penetrated to the stem of the finger-nerve, a sensation of pain, not suggesting cold at all. And, curiously enough, this sensation appears to come from the finger. In like manner, when we strike the "funny-bone," the finger tingles with pain; and when, by pressure on the arm or thigh, we affect the nerves running from hand or foot to the brain, it is the hand or the foot which "goes to sleep," and presently wakes up with a vengeance!

Let us take again for explanation the convenient figure of the telegraph. Consciousness sits at the receiving instrument in the brain, and when we dip the finger in cold water, the hidden operator receives a dispatch, which he spells out—"Cold!" There is no date of place, but he is sure it came from the finger, because that is the only station he knows on the line. But now we dip the elbow in cold water. The operator first receives an ordinary elbow-dispatch—"Cold;" but presently we cut the finger-wire, as it were, and that puzzles him. He says: "There's something to pay at the finger station. A fellow has got hold of the instrument who can't spell at all." So he writes: "Pain in the finger," which is a convenient way of getting over the difficulty. "Wires down" never occurs to him. The foolish fellow will sit there sometimes months after a man's leg has been cut off, and keep on receiving dispatches from the lost member, and telling the man that his toes ache, when anybody, with half an eye, could see he hadn't any toes.

The nerves which communicate motion to the muscles, carry dispatches, as I have said, the other way; but perhaps they receive, also, signals in return. At least we know that in some way we are conscious of the movements of the muscles. At every moment we know where every part of our body is; and this knowledge constitutes the sense of locality, which some philosophers call a mere acquired association. Whatever it is, the sensations of touch would be almost useless without it.

If we inquire as to the inner apparatus connecting the nerves with consciousness, we get but an unsatisfactory answer. We find but small bulbs, occupied by a turbid fluid and a nucleus; and we cannot discover any difference in their appearance, even between the dispatch-receiving bulbs of the nerves of sensation and the dispatch-sending bulbs of the nerves of motion. Yet differences there must be, not only between these two classes, but among all the varieties of the former class.

Neither have we yet discovered the secret of the exterior organs of touch. It is found that the nerves terminate close under the cuticle or outer skin, in free extremities (not loops, as was formerly believed); and in certain portions of the body it has been observed that these free extremities consist of tufts of very delicate branches, enclosed in bulbs apparently filled with fluid. But these so-called "touch-corpuscles" are merely a new mystery; and we cannot even believe that they contain the secret we are seeking, since they have not been found everywhere, but only in circumscribed portions of the skin, and the sensations of touch are apparently just the same where these bulbs cannot be found as where they have been discovered. Moreover, we know that when they are absolutely removed (as by cutting off a limb), or not employed in telegraphing the sensation (as when we put the elbow in cold water), the sense of locality is still communicated. In short, madam, we must give up the conundrum for the present, though we keep up a deal of guessing.

The sense of touch proper includes the production of the sensations of pressure and temperature, each of which constitutes a peculiar sphere of intelligence. Although we cannot, by studying the mechanism of the organs of the sense, understand its operations, there is much to be learned from observing and analyzing the operations themselves; and this will be, with your permission, Madam, a fruitful topic for another evening's talk. R. W. R.

American Institute of Mining Engineers.

WE learn that the August meeting of the American Institute of Mining Engineers will be held at Bethlehem, Pennsylvania, on the third Tuesday (the fifteenth) of that month. President COPPEE, of the Lehigh University, has placed a fine hall at the disposition of the Institute, and the residents of Bethlehem are, we are assured, prepared to extend a cordial welcome to the members of the Institute, and do all in their power to make their visit agreeable. No place in the country possesses more mines and works of interest to a Mining Engineer than Bethlehem, and we think the choice of the Council a wise one.

New Publications.

THE AMERICAN EDUCATIONAL MONTHLY (J. W. SCHERMERHORN & Co., 14 Bond street, New York,) is out for July, with an interesting variety of matter. We venture to criticise this very feature of variety, as a blemish in a magazine devoted to the science of education. Such articles as "Suburban Saunterings," and "Petroleum as a Fuel," however attractive to the reader, occupy space which the professional teacher grudges them, since it should be filled with matter more directly bearing on his work and needs. But this is perhaps too minute an objection, considering that each number of the *Monthly* contains so much that is valuable to its peculiar constituency. We notice that the notices of new school-books (from other publishers than SCHERMERHORN) are as pointed and, occasionally, severe as ever. Whether commercial rivalries or real scientific impartiality lies below this acuteness of criticism, we do not care. We trust the result will be to destroy the detestable "cheap and nasty" manufacture of slip-shod school-books.

GOOD SELECTIONS IN PROSE AND POETRY etc. By W. M. JELLIFFE, *Teacher of Elocution*, comes from the same publishers as the foregoing. It presents, in a handy volume not too large for a reader to hold in the hand, or a traveller to put in the pocket, more than fifty favorite selections, old and new, which it would be difficult to find together elsewhere. They are all either eloquent, or poetical, or funny. This is the usual character of the collections of elocutionists, and is one reason, we think, of the fact that their pupils are likely to spout and sing, more than they talk. A direct, clear, simple conversational oratory is greatly needed in our time.

THE MERCANTILE LIBRARY ASSOCIATION issues this year its fiftieth annual report, from which we learn that the institution is flourishing in undiminished vigor, and with increased usefulness. The excellent management of the library (which now numbers 127,237 volumes) is largely due to the ability and zeal of Mr. A. M. PALMER, the librarian, who receives in the report a well-deserved compliment at the hands of the Directors. We regret to hear that his unremitting attention and enthusiastic devotion to his work have seriously impaired his health. We trust that rest and change may restore him to complete vigor. The subject of the opening of the Library on Sunday is discussed in the report, and the motives of the Directors in refusing it are explained. Without assailing these respectable men, we must express our regret that, for whatever cause, the poor are excluded from the privilege which the rich enjoy, of a quiet reading-room on the Lord's day. Bigotry dies hard; but it will die at last. Meanwhile, though the Mercantile Library is to be kept closed, the Reading Room of the Cooper Union is to be kept open, on Sundays; and the result of the experiment will, we trust, remove the scruples of conscientious though narrow minds.

THE PARENTS' GUIDE, OR, *Human Development through Inherited Tendencies*. By MRS. HESTER PENDLETON. New York: S. R. WELLS, 389 Broadway. 1871. Price $1 50.

This book, which now appears in a second and revised edition, calls attention to a very important though obscure and practically neglected subject—the influence of pre-natal causes upon character. The author has dealt with her theme intelligently and delicately; and her counsel to mothers cannot fail to be productive of good. It is a good sign for the community that themes which have too long been left to the hands of quacks, or prurient "sensation writers," are taken up by thoughtful, serious and virtuous men and women.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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THE SCIENTIFIC PUBLISHING COMPANY,
WILLARD P. WARD, MANAGER,
37 PARK ROW,
P. O. Box 4404. NEW YORK CITY.

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Greeting.

WITH the present number, the ENGINEERING AND MINING JOURNAL enters upon its twelfth volume. We are not appalled by this evidence of increasing age, since we feel ourselves to be on the sunny side of our career, and maturing rather than decaying. The new form which we have adopted for the JOURNAL is more convenient to the reader than the last; and the resultant loss in space is made up by omitting a large quantity of standing matter, in the way of advertisements, and the long list of patents which we have until recently published. Our subscribers will find themselves the gainers by the change.

Our new Department of Popular Science will be continued during this volume; and other improvements are contemplated, which will add to the professional and general interest of our columns. We trust that our patrons will continue to be as well pleased and served as they declare themselves to have been hitherto, and that their number will never grow less.

Interesting Engineering Operations in Chicago.

IT is reported that, after having raised herself several feet out of the mud, Chicago discovers that her river does not run to suit her. The current of the river, which ought to empty into Lake Michigan, was sluggish, and refused to move with the desired alacrity. Efforts were made to quicken its movements, but without avail. The people of Chicago are determined that the sluggishness of the river shall not hinder the progress of their city, and hence have adopted no less radical a way of obviating the difficulty, than that of reversing the direction of the stream, and making, as a correspondent aptly expresses it, the mouth of the river the inlet, as in fact it should be.

In order to accomplish this feat, they first erected large pumping engines to raise the waters of the south branch of the river into the Illinois and Michigan Canal, which empties eventually into the Mississippi. This project proved expensive and inadequate, and the proper surveys having been made, we understand that it is proposed to lower the summit level of the canal, so that the water will flow naturally from the Chicago river into the canal, and thence into the Illinois river, which empties finally into the Mississippi. The drainage of Chicago will thus reach the sea through the Gulf of Mexico instead of through the Gulf of St. Lawrence. The distance between the mouths of the two gulfs is about 2000 miles.

The Cornell University.

IT is a comparatively easy thing to start a new university. Some impulsive, generous man provides an endowment which seems large to him and to the public; in a sudden glow of enthusiasm, a good many other men bring gifts, who would not else have thought of doing so; buildings are erected, professors are appointed; students are gathered; speeches are made; degrees are conferred; and the new institution is launched on the sea where so many others are already bobbing about, just able to keep afloat.

But when the fervor of the beginning has died away, the cold reality of steady, persevering, hard work sets in. The largest endowment is found to be not quite enough; the wisest plans betray much friction in their working; the noblest aspirations sometimes fail to supply the place of age, tradition, and *esprit de corps;* petty details consume much time and create much trouble; in a word, the ancient experience is once more verified, that to create is easier than to maintain.

Thoughtful men are persuaded that the unnecessary multiplication of universities is an evil. Each new enterprise of this kind ought to have a better reason of being than individual generosity or local pride, and a more reasonable prospect of success than is furnished by a charter and a faculty merely. That these conditions are fulfilled in the establishment of the Cornell University, we think there is no doubt. The plan, the history and the present condition of that institution are such as to justify its existence and its fame. It is already, not a scheme, but a power; and the best guarantee of its future progress and perfection is the fact that its severest critics are the men who manage it. No outside observer can keep pace with their quick perception of its shortcomings, and their constant adoption of improvements.

The best thing in the plan of Cornell University is its elasticity. In our opinion, the attempt to engraft a university after the foreign plan upon our present American system, would fail. The stern gymnasial training, which we have not yet attained, is an indispensable prerequisite; and the silly haste of American boys to get away from college into active life (a haste for which their parents, and the traditions of our society, are responsible,) tends to defeat all our endeavors for a thorough educational system. Yet it cannot be denied that the European university, the fruit of a thousand years of experiment and thought, is the ideal to which we ought to work. Apparently the best that can be done at present, is to retain so much of our college discipline as seems to be necessary, and at the same time to give every opportunity, in special, optional and post-graduate courses, for the acquirement of a broader and deeper training.

The class system in American colleges is at the root of the difficulty. Unfortunately, it is not an unmixed evil; if it were, it could be unhesitatingly attacked and uprooted. But it is undeniable that the social fellowship of the college exerts, in many respects, an excellent influence. Convenient to instructors it certainly is. All dealing with men in crowds, by the wholesale, is easier than the watchful and patient training of individuals. It is easier to prescribe a curriculum, lay down rules, and run pupils through the machine, than to put every man upon his own merits, give him individual liberty, and judge him by the fruits. That is to say, it is easier to get fair average results by the former than by the latter method; because it is easier to govern than to educate.

Of six hundred and nine students, reported in the last Cornell University Register, we notice that three hundred and three are pursuing special and elective courses. Probably most of these are attempting to obtain not more, but less, than the ordinary college education. It is a necessary evil of the new system, that American students will take advantage of it, to rush in a hurry after bits of science or learning which they think they need or would like to have. To counteract this tendency, the different special colleges are judiciously supervised, and courses in each are prescribed. Our young men can scarcely be trusted to choose for themselves what and how long they will study. Thoroughness must be secured partly by regular class exercises, partly by rigid examinations. And in the latter, we think, falls the great additional labor of the new system—indeed, of any system departing from the old college formula. Nothing but severe and impartial examinations, and the distribution of all rewards upon the ground of scholarship thus ascertained, can replace the ancient discipline.

The examinations at Cornell are conducted in writing; and an inspection of the "papers" of this and the last year convinces us that they are searching and sincere. In fact, the professors and instructors ought not to be burdened with the enormous toil of preparing and examining in detail the questions and replies; and we heartily approve the plan, which we understand will be carried out as soon as the means of the university permit, of establishing fellowships, the incumbents of which, while prosecuting, at leisure and without expense, the special studies and investigations of their choice, shall give a small portion of their time to the performance of the labors now laid upon the over-weighted shoulders of the faculty of instruction.

The regulations as to degrees and prizes appear to us, in the main, highly judicious. No "honorary" degrees are conferred under any circumstances. Every candidate must give the prescribed proof of proficiency. We do not clearly understand, from the rules, whether degrees are conferred upon students at this university exclusively; if that is the case, we think the restriction unwise. Proof of an equivalent course of study elsewhere, and proficiency shown upon thorough examination, should be ground enough for the granting of the degree. There is no danger in making degrees too numerous, if they mean all that is implied in them; and nothing could be better for the university than to establish such a reputation for its honorable titles as to make it worth the while of other graduates to seek this endorsement. The direct effect in any case would be to induce young men to acquire, as well as demonstrate, their knowledge at the university itself.

A large number of prizes are conferred in the different departments, almost all of which are in money. While there are some evils connected with any system of rewards under which a few must succeed, and many fail, yet we must confess that we see no better way than the disposition of money-prizes to encourage the student of small pecuniary means. The ground on which any individual should be aided with money is not his moral worth, or the value of an education to him, but the prospect that, if thus assisted, he will contribute something valuable to society. We give all children a free common school education, because, if they grow up ignorant, the community will suffer. But, this being secured, we should confer our gifts of higher education upon those whose learning will most benefit the community. For the generality of young men, college education is too cheap already. They ought to pay more nearly what it costs; and if it were feasible (which may reasonably be doubted) we think it would be wholesome, to

throw our college endowments, over and above the capital in buildings and apparatus, into the form of money-prizes, bestowed by the novel device of deduction from the tuition-bills of students.

For instance, a college has so many professors, and so many thousand dollars, from the income of which the larger portion of the salaries of instruction is paid. Why would it not be fair to assume a maximum number of students, corresponding with the numerical strength of the faculty, and assess the expense of instruction accordingly? Thus, if the organization of the institution were adequate for five hundred students, let the fees be in that proportion, though the number of students were less, since of course it would not do to assess upon a small number the cost of providing for a large number—that would be to punish those who came for the neglect of those who stayed away. When the number of students exceeded the maximum, additional instructors would be required in proportion, and the fees would remain the same. Meanwhile, every student might be permitted, by actual (not relative) excellence in scholarship to reduce the amount of his tuition bills; and there might be, besides, a sparing and secret administration of a special fund, in the further assistance of successful but indigent students, by loans without interest, to be repaid as debts of honor, whenever the recipients should be able conveniently to discharge them. This latter feature has been employed, without the secrecy, in European technical schools.

In this Utopian University, those persons would be most helped who were the best students. And this is, after all, the only true ground for assisting anybody to a higher education. Giving money to people is a dubious matter at best; it should, at any rate, be given, in such departments as this, chiefly to those whose use of it will most advance the cause of science and the progress of mankind. Hence, to return to Cornell University, we are glad that so much money is put, in the shape of prizes, within the reach of deserving students.

There is, moreover, a free scholarship from each Assembly district in the State, accorded, as the statute says, "in consideration of superior ability and as a reward for superior scholarship in the academies and public schools of this State."

To all other undergraduates, the university fees for instruction are fixed at forty-five dollars a year—a sum which we consider far too small, although it is doubtless rendered necessary by the ridiculous and foolish competition of American colleges in this particular. Even in Germany, where the cost of living is much less than here, the university fees are not so low. It is possible to go too far, in making higher education cheap. In our opinion, the better course is to make it valuable. We hear universal complaint that teachers are underpaid. How can it be otherwise, when pupils are under-charged? Who is to begin the needed reform, or how it can be done without sacrifice, we do not pretend to say; yet there are hints in American society, not without value. There are schools which exact high prices, and are, nevertheless, largely patronized, because, for some real or fancied reason, their diplomas are much desired. Why should Cornell University display to the public its magnificent endowments, its brilliant corps of instructors, its comprehensive and thorough plan of education, and then label the whole, like the stock in a bankrupt's window, "Going very cheap; all this for forty-five dollars"? There is no answer, except in the equal folly of rival establishments.

We believe that this young and vigorous University is destined to a grand career. The liberality that endowed it has been supplemented with wisdom and insight. The gifts that still flow in upon it are not thrown away. The spirit that guides it is neither stupidly conservative nor recklessly radical. It will not fail by attempting impracticable things, nor cease to strive after all better things. By as much as we admire its high standard, and acknowledge its actual progress, we are impatient with the notion of a cheap education, which should have no place in the new age it represents.

The commencement at Ithaca, the other day, was attended by the inauguration of the new building erected for the College of the Mechanic Arts by Mr. HIRAM SIBLEY, of Rochester. The year has been marked with numerous other munificent contributions to the resources of the University, and the commencement exercises were crowned with the announcement of an additional gift of fifty thousand dollars from ANDREW D. WHITE, the distinguished and beloved President. The provision already made for buildings and apparatus of instruction is very great; and the number of students (the vulgar test of strength) is certainly satisfactory. But the true strength of a university is in the individual character and the harmonious co-operation of its faculty; and in this respect Cornell is notably strong. The list of her resident and non-resident professors contains many distinguished names, and, what is better yet, many names of young, active and enthusiastic men, whose sure future fame will be one with the glory of the University they are building up.

Atmospheric Gas Engines.

ALTHOUGH so far as we are aware engines of this kind are nowhere in use in this country, the principle on which they are constructed is not entirely new. In igniting combustible gases inside a closed metallic vessel, the heat generated is imparted to the gaseous products of combustion, which, if prevented from expanding in consequence of such increase of temperature, will exert a proportionate pressure upon the surfaces of the closed vessel. This pressure would remain constant if no heat were taken away from the gases, but will in reality diminish rapidly, in consequence of the heat generated being absorbed by the metallic surfaces of the vessel. Experience has shown that the interval of time which elapses between the heating and consequent expanding of the gases, and the subsequent cooling and consequent contracting of the same, is but a very short one, and therefore in applying the expansive force of such heated gases as motive power, unless they are allowed to expand very rapidly immediately after the combustion has taken place, a great portion of the heat that should have produced such expansion will be absorbed by the cylinder of the engine, and consequently a great portion of the motive power will be lost. In applying the ordinary arrangement of connecting rod and crank motion for transmitting the expansive force of the gases behind the piston to the engine shaft, such force has to overcome not only the work alloted to it, but also the inertia, of the whole of the moving parts of the engine, in addition to which the motion of the piston is controlled in a very prejudicial manner by the action of the crank; the heated gases are thus prevented from expanding with anything like the requisite rapidity, and a considerable loss of effect takes place.

An engine of this kind was invented some time ago by an engineer named OTTO, of Cologne, Prussia, and has since been improved by Mr. LANGEN, of the same place.

Mr. OTTO's original engine was provided with two pistons, one of which was actuated by the expansion of the gaseous products of combustion, while the actual work was in fact accomplished by the atmospheric pressure against the second piston, acting against a partial vacuum formed by the expansion and cooling of the gases.

In the improved engine only one piston is employed. This works in a vertical cylinder open at the top, and the piston, instead of having a piston-rod connected to the fly-wheel shaft by a crank and connecting-rod, has a rod fixed to it upon which is formed a rack in gear with a spur wheel upon the fly-wheel shaft; this spur wheel is not fixed to the shaft, but is so connected to it by means of a description of a ratchet wheel or friction clutch mechanism, that when made to revolve by the rising of the piston and its rack, it turns freely upon the shaft, but when made to turn in the reverse direction by the downward motion of the piston and rack, it causes the shaft to revolve with it. Thus, when the ignition of the mixture of combustible gas and air takes place beneath the piston, the expansive force of the heated gaseous products of combustion causes the piston to be thrown rapidly up to the top of the cylinder, no other work being at the time performed by such motion than the turning of the spur wheel loose upon the fly-wheel shaft. By the time that the piston has arrived at the end of its stroke the expansion of the gases has cooled them to such an extent that by their consequent condensation a partial vacuum has been formed beneath the piston, the latter portion of the stroke of which has been made by the momentum which it has acquired, and the pressure of the atmosphere now consequently forces down the piston and rack, thereby causing the fly-wheel shaft to revolve as described.

The Useless Destruction of Engineering Works in France.

FROM the report of the Commissioners appointed by the National Assembly to inquire into the present condition of the railways, roads and canals of France, we learn that twenty days will probably suffice to put the railways into temporarily efficient condition. The total damage done to lines, stations, etc., amounts to nearly sixty millions of francs. The French system of railways is condemned by the Commission, from a military point of view, as inefficient, on account of the radiating of the principal lines, and the lack of transverse lines to unite the radiating roads. The damage done to the ordinary roads is enormous, and it is estimated that 10,000,000 francs will be necessary to make the repairs urgently required upon these roads. The Commission is of the opinion that much of this destruction was worse than useless, and that a little less precipitation on the part of defence committees as well as a little more knowledge of military science would have saved from destruction a large portion of the bridges and roads.

MINING SUMMARY.

California.

NEVADA COUNTY.

The Marysville *Appeal*, of June 15, says: On Saturday we gave an account of an accident which occurred at the tunnel of the Blue Gravel Company, by which JOSEPH HOSKINS and RICHARD RICHARDS were severly injured. From residents of Smartsville we learn that the sufferers are rapidly improving, and further, that their eyes are not injured. The accident was caused by a wire of one of the cartridges coming in contact with the wire leading from the battery to the charged holes in the face of the drift, and as the latter was discharged the electricity discharged the loose cartridge at the same instant. These Giant powder cartridges have each a small wire extending out a few inches, which is attached to the battery wire, whenever they are ready for explosion. In this case, the injured miners had got their blast ready, and brought back the box containing the remaining cartridges, setting it down in a sort of chamber excavated for the battery. Unfortunately, they set it so close to the battery wire that the wire of one of the cartridges touched it. The explosion ground the box into thousands of splinters, which filled the faces and breasts of the two miners, completely covering the surface, leaving them unrecognizable. Their escape from death, or from the loss of eyesight is almost miraculous.

Nevada.

From the Elko *Independent*, of June 17, we learn that E. D. KELLEY and FRANK COLE have discovered a fine silver lode, near Unionville, south of the Arizona hill. The *Silver State* says it is probably a continuation of the famous Arizona vein in that direction, as the ore is very similar. The ledge is quite small at the outcrop where discovered, but in sinking down upon it to a depth of eight feet it has increased very considerably. The owners are quite elated with their discovery, and are confident that they have a good thing.

FIRE IN GOLD HILL.

On Wednesday last a fire broke out in Gold Hill, on the west side of Main street, destroying thirty buildings,

including the Eclipse mill and a part of the Granite mill. The loss foots up to near $33,500. The fire is supposed to have been the work of incendiarism.

For twenty-four hours, up to Saturday noon, says the Eureka *Sentinel*, of the 11th inst., there were smelted in two large and two small furnaces of the Eureka Consolidated nineteen tons of bullion, of the value of $350 per ton.

BULLION.

The Ely *Record* says that on the 8th and 11th insts. bullion was shipped from Pioche, via Salt Lake, to the amount of $36,340. Since June 4th to the 12th Pioche shipped $78,984. There were shipped during the month, of May last, through WELLS, FARGO & Co., from Austin, says the *Reveille*, eighty-seven bars of silver bullion weighing 7,437 pounds, of the value of $99,751 18. The amount of bullion shipped from the Arizona mine, through WELLS, FARGO & Co., since our last issue, says the Unionville *Silver State* of the 10th, was $6,232.

According to the Reese River *Reveille*, of June 16, the Citizens' mill is approaching completion. The boilers and engines, batteries, and pans are in position, and a portion of the roasting apparatus is on the ground, the balance being expected within a couple of days. By to-morrow night the last shingle will be nailed on the roof, so that in two weeks more at farthest steam will be gotten up.

From the Gold Hill *News*, of June 19, we take the following items: The new Lady Bryan Company made the second clean-up at their mill on Saturday, yielding 2,700 ounces of crude bullion. This, as was predicted, was considerably better than the first run, and places the company on an excellent financial basis; they are out of debt, and this will leave them over $8,000 in the treasury. Last Friday they struck a deposit of richer and better ore than they have yet been working, at the 80-foot level, south of the shaft, which promises to be extensive. The strike reported in the Savage mine, at the 400-foot level, near the Gould & Curry line, is said by those who know best, not to amount to much. They have struck hot water at the tenth or lowest level. The Gould & Curry Company commenced sinking their shaft deeper last Saturday, and have progressed about seven feet thus far. The Hale & Norcross Company are getting along finely with the retimbering of their shaft, and have sunk their incline from the lowest level, about eighty feet. It is fifty feet south of the shaft.

The Gold Hill *News*, of the 20th ult., contains the following mining intelligence: The Yellow Jacket mine is yielding 175 tons of ore per day at present, from the 800, 900 and 1,000-foot levels, milling about $40 per ton. Prospecting is actively carried on at the lower levels. At the 1,000-foot level some good bodies of ore are developed in the northern portion, towards the Confidence line. The main drift north, at the 1,100-foot level, is progressing satisfactorily, but no ore is yet developed in the cross-cutting. The ore breasts of the mine are looking well, and the general situation satisfactory. During the past week 220 tons of ore were taken from the Overman mine, assaying $17 per ton. The principal yield is from the 226-foot level. The Caledonia mine yields about ninety tons of ore per day, keeping two mills running. The ore section is from the 300-foot level up. The Segregated Belcher is not yielding much ore at present, and the principal work done is prospecting toward the Belcher line. The sinking deeper of the Ophir shaft progresses well, with no serious impediment from water, and it is estimated that it will take nearly or quite seven months longer to sink to the contemplated depth of 1,400 feet. On the 14th inst. $22,975 was sent down from the Crown Point mine, and $31,689 from the Chollar-Potosi mine. The recent advance in Savage was based more upon a contest in the approaching election than anything else. The mine is yielding 175 tons of ore per day at present, and the Hale and Norcross yields about the same. The following companies hold their annual meetings next month: Chollar-Potosi, Overman, Savage, Yellow Jacket, and the Imperial a week from next Thursday. The *Alta* says: "There is no doubt but that the production of the metals this year will exceed that of last by several millions. The value of Crown Point is to-day $3,900,000; at this date last year, when it was producing nothing, and was under assessments, it sold for $73,000. It is now producing $300,000 per month, and pays $10 dividends. The ore body in sight is estimated at a figure much higher than the stock value, and there is no limit yet assigned to the extent of the ore, the wealth of which is reflected in the other Comstock mines. There is no doubt, therefore, that the increased value of the mines is on a sound basis."

Montana.

FRENCH BAR CLEAN UP.

The French Bar Ditch Company made a clean-up on Monday of six boxes of their flume, after a run of two weeks, and took out $5,700; and our informant is of the opinion that if the whole flume was cleaned up that some $12,000 would be taken out. The first six boxes contain no quicksilver, and are cleaned up every two weeks, during the mining season, while the remaining boxes are left until fall before a clean-up is made, the quicksilver amalgamating all the fine gold which escapes over the riffles of the first six boxes. We understand that the company on this run, did not clean their bedrock.

The following is from the *Independent:* Mr. JOHN DOYLE came in from Beartown last evening, and reports everything in a prosperous condition at that camp. FOLEY, ST. JOHN & WELLS are taking out considerable gold now, but when they clean up their flumes they expect to have a very large amount. The lower part of the gulch is being prospected, and one company are making $8 per day to the hand. This ground has always been considered worthless, but the recent development encourages the belief that a greater portion, if not the whole of the lower gulch, three miles long, will pay. On Elk Creek all the flume companies are doing well, and this is also true of all who are working at the Head of Deep. On the gulch, three miles below Beartown, a company have found the old channel, and are taking out big pay.

RED MOUNTAIN CITY.

A friend sends us the following from Red Mountain City, under date of May 28th: The quartz mines are all looking fine. The various arastras have started up, with plenty of water and a good prospect for a more abundant supply for the entire year than ever before. NEVINS & BRANIGAN are taking out some of the finest ore that was ever seen in Montana. FLOWERS & Co. are doing well on the Only Chance. TRAINOR & Co. have struck bed-rock with their flume, and have a good paying mine. The Langworthy Flume Co. have started, and have every prospect of a profitable season's work. LEGGAT & Co. will start up their flume in a few days. MCBRIDE will have his flume to bed-rock in a short time. Basin Gulch is coming out all right. There are now four flumes in active operation, to wit: LEGGAT & Co., DICKEY & Co., HENRY & Co., NICHOLS & Co. All are doing well. There are four companies ground-sluicing on Moose Creek. DICKEY & PARR'S arastra, on Gold Hill, is running night and day on a good quality of ore. WM. MCCULLEN and PAT BOYLE, from Boulder, report the miners all at work and nearly all making money. The miners on Boyle's gulch are making from $10 to $12 per day to the man. STUART & Co's hydraulic is running in Alta gulch with good success. But one company is now operating on Boulder bar—REESE ANDERSON & Co. They have a hydraulic in operation, doing well.

BUTTE CITY.

The placer mines of Butte are mostly owned and controlled by a few companies, all of whom are working day and night, with plenty of water and doing well. JOHN NOYES cleaned up $2,400 from a side sluice recently, and expects to clean up some $8,000 or $10,000 from the main flume. The WAMPLER BROS., WM. WHEELER, and several others are mining extensively, and will make some splendid clean-ups during the season. A. W. BERNARD, of Missoula Gulch, near Butte, is running a hydraulic and two sluices, and cleaned up from one sluice recently the nice little sum of $900, and has ground that will last for years. Thousands and thousands of acres of mines equally as good as any now worked, exist in the prairies and hills above the line of the present ditches. Messrs. HUMPHREY & BRO. are now engaged in the construction of a tunnel through the main range for the purpose of furnishing an inexhaustible supply of water for these rich placers. It is one of the most gigantic enterprises ever undertaken in Montana, and one that will add immensely to the wealth of Deer Lodge county.

A correspondent of the same paper from Carpenter's Bar writes: Mr. FRED. HEAIGLE & Co. discovered rich ground on Eureka Bar recently. They have ground-sluiced and cleaned up two pits, and it payed them $40 per day to the hand. The company have now three gangs of hands ground-sluicing. The ground is shallow, nowhere exceeding four feet in depth, and most admirably situated for this class of mining, as it has a gentle grade and the bank is free from heavy gravel and cement. ECHOLS & BRO. have one hydraulic running, at the head of Eureka gulch, and MILLER & DANEY have two sets of hands ground-sluicing at the mouth of Eureka gulch, and are doing exceedingly well. On Carpenter's Bar there are six hydraulics in operation. POUNDS & GREEN are the principal miners in this camp. They have three hydraulics in operation. MOORE & MONTGOMERY run one hydraulic, DUFFY & DAY one, and two companies are ground-sluicing. JOHN WILLIAMS has also a hydraulic in full blast. MCCLAIN & Co. are running bed-rock flumes in Carpenter's gulch, with a hydraulic. POUNDS & GREEN have started their bed-rock flume at the mouth of Carpenter's gulch, and are going to run it day and night, under the superintendency of Mr. JAMES SKAGGS. HUBBARD & HENRY have one hydraulic and one ground sluice running in Prairie Gulch, with good success.

Colorado.

The Pewabic mine is, according to the Colorado *Herald* of the 7th of June, steadily following up its yield of large supplies of ore, most of which is taken to Professor HILL'S smelting works for reduction. Recently a new discovery has been made upon this lode, some two thousand feet west of the works of Messrs. LYON & Co., which looks really encouraging; this discovery has a crevice four feet wide, the shaft is down about forty feet, and is turning out precisely the same class of ore as that taken from the older established portions of the vein. Some of this ore has been worked by stamp-mill process, and yielded six ounces of gold to the cord; another lot is now being worked at Mr. KIMBEN'S mill, at Black Hawk, that promises equally well. These frequent discoveries as extensions of principal mines, augers as flatteringly for their great length and extent, as for their acknowledged permanency and richness.

GULCH AND RIVER MINING.

The Caribou *Post* of June 17th contains the following: On North Clear Creek, below Black Hawk, the bed of the creek was more or less worked out in early days. Then for three or more years it was practically abandoned, during which time ALEX. CAMERON bought up at moderate prices as many consecutive claims as he could. They gave him as much ground as he could work out in five or six years. The first and second flumes that were put in proved to him "how not to do it." The third and present one has stood, and will stand, all the floods that can come against it. Last season, having got fairly to work, he employed from twenty to forty hands during the summer, and cleaned up as an average of the season $11 60 per hand. This season he is in better ground, and little is hazarded in saying that he will take out $15 to the man. He has now only eighteen men, but will soon be prepared for a large increase. The deep river mining, by shafts and drifts, on the creek above, has proved less remunerative, on account of the expense of pumping and timbering; but numerous extraordinary rich pockets have been struck at different points. Within a year a ditch a mile and a half in length has been constructed, which carries the waters of South Boulder far enough up Boulder gulch to give 1,500 feet of gulch below its mouth. Mr. LAFEER, the present owner and operator, informs us that by ground sluicing it pays from $5 to $8 per man. On Moon Gulch, which formerly was regarded as starvation diggings, a new experiment is being tried for rapid working. They have built a dam which they allow to fill and then turn the whole head into the gulch with the force of a torrent. This tears up an immense amount of earth for a while, which is run through sluice boxes as usual. While the dam is filling again they throw out the boulders. With what success this plan is pursued we cannot at present say. All through Summit, Park, and Lake counties, there are hundreds of gulches that will furnish good diggings when one man or company has sufficient ground and means to bring in the water. Considerable of this old ground has been reoccupied during the last two summers, and has paid so well as to leave no doubt of the success of others. Galena Gulch, near the mouth, had been neglected for years. This was taken hold of by WILLIAMS, LEVELL & Co., and last year paid not far from $15 per hand.

THE GOLD SHIPMENT

for the month of May, from the several banks of this city, obtained at headquarters, foot as follows:

	CURRENCY.	COIN.
Thatcher, Stanley & Co.	$62,000	$55,600
Jerome B. Chaffee & Co.	17,000	15,200
Rocky Mountain National.	27,000	24,200
Total	$106,000	$95,000

This with the constantly increasing purchases of our richest ores by the Cash and Rockwell chorination works, the Boston and Colorado, Western Smelting Company, Philadelphia and Colorado, together with the various shipments to eastern establishments, none of the receipts of which, except from the company first named,

are ever recorded in our shipping lists, makes up a very gratifying condition of the ore and bullion markets for the season just opened.

Idaho.

From the *World* we take the following news from the Basin: A big slide occurred in Bear Run, of a tract of ground on BOWMAN & Co's claims of 50x150 feet. Several acres of the ground above were displaced, and 200 feet of the big ditch and a section of the old Wright ditch slid along with it. Fortunately it gave time for parties at work there to get out, and no one was injured.

Mr. HENRY IRWIN, the purchaser of the Yellow Jacket quartz mill and mine at Granite Creek has commenced work putting his mill in order and has a force of hands engaged in the mine. The mill will probably start up inside of a couple of weeks, when we shall expect to chronicle another success in the quartz business in that section. Messrs FRARY & HART, owners of the Lawyer ledge, also at Granite Creek, were in our city a few days ago, negotiating for a quartz mill to put up at their mine, which is known to be a well-developed ledge of paying quartz, and we understand that it is their intention of erecting a 15-stamp mill as soon as they can procure the machinery. With three quartz mills, aggregating forty stamps, pounding away at Granite Creek on rich rock, that camp will take the lead, and be the liveliest place in the Basin.

New Mexico.

The *New Mexican*, of June 8, contains the following news from Fort Bayard: "The citizen scout, who left Silver City some time since, has just returned. The scout found no Indians. A party of prospectors—about a dozen men—with two Mexican guides, have just come in for provisions at Silver City. They are all strangers, and have been out prospecting a long time. They report having found rich placer diggings on the San Francisco river, about three days travel from here."

Utah.

From the correspondence of the Colorado *Miner* of June 22, we make the following extracts of mining news:

THE MILLER MINE.

This is a mine well worth visiting, and is by far the largest deposit of ore which I have seen in Utah, considering the amount of work done, the discoverers having struck pay at the very surface.

The mine is opened by two tunnels and an incline, the largest tunnel being sixty feet in length, following a solid body of ore all the way from the surface to the heading, where it now shows a vein nineteen feet in thickness. At the time of our visit a portion of the mine had caved in owing to defective timbering, but even when seeing under this disadvantage, the body of ore exposed to view was simply enormous. Two miners with pick and shovel can easily keep two wheel-barrows busy running out ore to the dump, where five men are employed sacking it up, after which it is slid down a ravine on the snow to the gulch below. From twelve to fourteen tons per day is the usual quantity taken out when worked in this way. When we consider that this ore will run from $90 to $180 per ton, and that the quantity which can be taken out when the mine is properly opened for working, will be only limited by the means of transportation and reduction, we can hardly comprehend the true value of this mineral deposit. A tramway eight hundred feet in length can be easily and cheaply constructed from the mine to the base of the mountain, there connecting with a wagon road built on a good grade down the creek to where the furnaces will be erected. The surrounding mountains are thickly covered with a heavy growth of pine, sufficient to furnish fuel in abundance for many years to come, and taking everything into consideration, I can see no possible chance for a failure, if worked by practical miners and economically managed.

THE WYOMING LODE

is situated, perhaps, four hundred feet above the Miller, on the very crest of the mountain, and is supposed by many to be the same mine. A short drift has been run in on the vein from the east face of the hill, at the end of which a shaft has been sunk to a depth of twenty feet, disclosing a vein of ore eight feet in width. It is nearly the same character as the Miller, being carbonates mixed with galena, and assays at the rate of $122 per ton.

The owners are now drifting along the vein, and taking out sufficient quantities to ship had they only a good road to the mine.

THE KENTUCKY LODE

is nearly a mile further north on the same mountain. A shaft has been sunk to the depth of twenty-five feet from the surface, the ore vein being about four feet wide in the bottom. The mineral is coarse galena and honey-combed quartz, the value of which I did not learn, but it is probably not very rich.

A CARD. I have a friend in the North West who will be open for an engagement as Local Representative or agent (say in Chicago), for Eastern parties of character, in Commercial Engineering and Mechanical Business, and in whose behalf I would be glad to confer with any parties desiring the services of a first-class man. A long and intimate acquaintance enables me to endorse him as having unusual energy, perseverance, executive faculty and practical business experience. His references include leading bankers, merchants, and others in New York, Boston and in the West.
Address "FIDES" care Whitelaw Reid, Esq., Tribune Office, New York.

U. S. PATENT OFFICE,
WASHINGTON, D. C., May 11, 1871.
On the petition of JOHN TOULMIN of Worcester, Mass., praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvementin Vibrating Shears.
It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing aguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next. Any person may oppose this extension. M. D. LEGGETT, Commissioner.

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DEPARTMENT OF PUBLIC WORKS, No. 237 Broadway.

TO CONTRACTORS.—Proposals inclosed in a sealed envelope, with the title of the work and the name of the bidder indorsed thereon (ALSO THE NUMBER OF THE WORK AS IN THE ADVERTISEMENT), will be received at this office until Monday, July 3, 1871, at 11 o'clock A. M., for the following work:

1—For paving Broome-st., between Broadway and Centre-st., with Belgian pavement, and laying cross-walks at the intersecting streets where required.

2—For paving Bayard-st., between Bowery and Baxter-st., with Belgian pavement, and laying cross-walks at the intersecting streets where required.

3—For paving Willett-st., from Grand to Rivington-st., with Belgian pavement, and laying cross-walks at the intersecting streets where required.

4—For paving Thirty-second-st., from Second-ave. to East River, with Belgian pavement, and laying cross-walks at the intersecting streets where required.

5—For paving Forty-fifth-st., from Second-ave. to East River, with Belgian pavement, and laying cross-walks at the intersecting streets where required.

6—For paving Fifty-first-st., from Broadway to Eighth-ave., with Belgian pavement, and laying cross-walks at the intersecting streets where required.

7—For paving Fifty-seventh-st., from Eighth to Ninth-aves., with Belgian pavement, and laying cross-walks at the intersecting streets where required.

8—For paving Astor-place, from Fourth-ave., to Broadway, with Belgian pavement, and laying cross-walks at the intersecting streets where required.

9—For paving Eighth-st., from Fourth-ave. to Broadway, with Belgian pavement, and laying cross-walks at the intersecting streets where required.

10—For sewers in Sixty-first and Sixty-second-sts., from Boulevard to Ninth-ave.

11—For sewer in One-hundred and Fifteenth-st., from Avenue A to First-ave.

12—For sewer in One Hundred and Twenty-third-st., from Avenue A to Second-ave.

13—For outlet sewer in One Hundred and Eighth-st., from Hudson River to Boulevard; to One Hundred and Tenth-st.; to Tenth-ave., with branches in Boulevard and One Hundred and Sixth and One Hundred and Seventh-sts.

14—For sewer in Sixty-fifth-st., from First to Third-ave.

15—For underground drains between Seventy-third and Eighty-first sts., and First and Fifth aves.

16—For regulating, grading, curb, gutter and flagging Lexington-ave., from Sixty-sixth to Ninety-sixth-st.

17—For curb, gutter and flagging First-ave., from Twenty-third to Thirty-fourth-st.

18—For flagging One Hundred and Twenty-third-st., from Third to Fourth-ave.

19—For flagging Fifty-ninth-st., from Ninth to Tenth-ave.

20—For flagging Fifty-fifth-st., from Broadway to Eighth-ave.

21—For flagging Greenwich-st., from Laight to Canal-st.

22—For furnishing this department with granite basin-heads and their appurtenances.

Blank forms of proposals, the specifications, and agreements, the proper envelopes in which to enclose the bids, and any further information desired, can be obtained on application to the Contract Clerk at this Office.

WILLIAM M. TWEED,
Commissioner of Public Works.
NEW YORK, June 21, 1871. 2:t.

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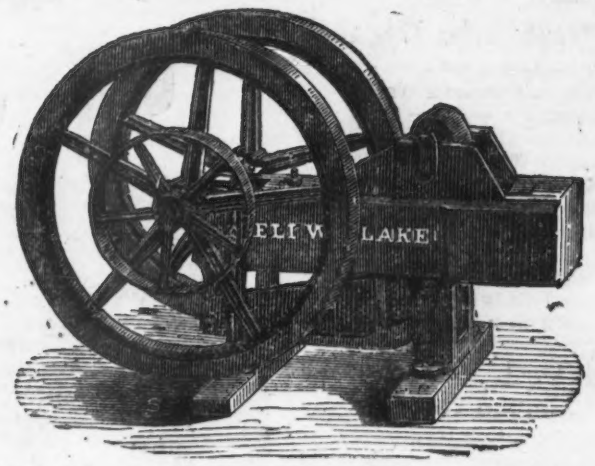

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☞ The Patents obtained for this machine in the United States and in England having been fully sustained by the courts, after well contested suits in both countries, all persons are hereby cautioned not to violate them; and they are informed that every machine now in use or offered for sale, not made by us, in which the ores are crushed between upright convergent faces or jaws actuated by a revolving shaft and fly-wheel, are made and used in violation of our patent.

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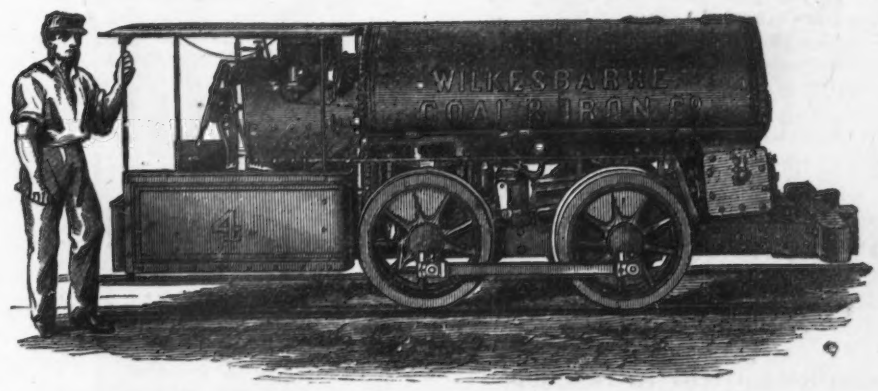

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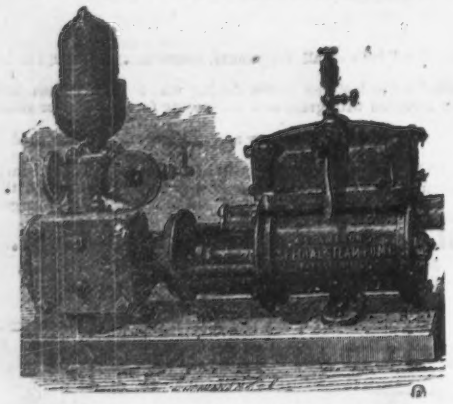

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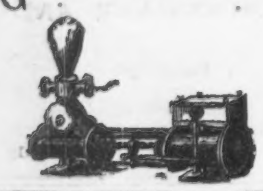

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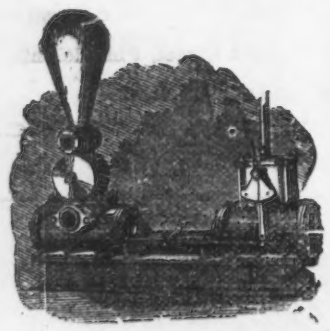

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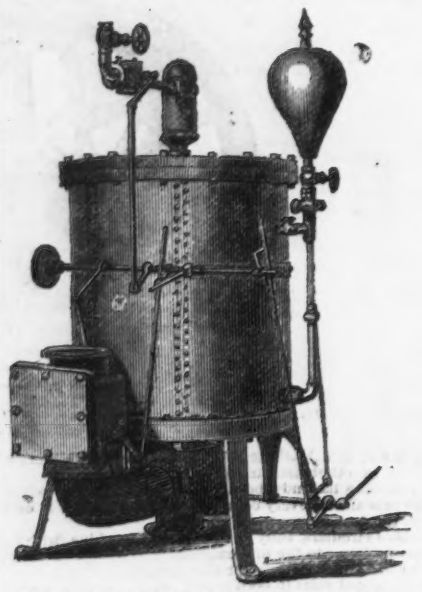

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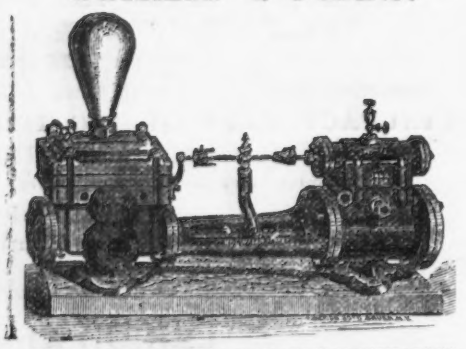

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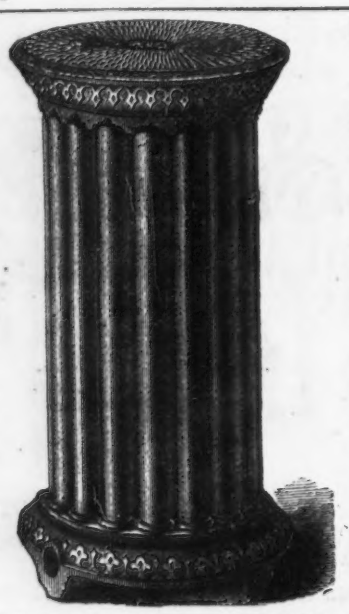

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U. S. PATENT OFFICE,

WASHINGTON, D. C., May 26, 1871.

On the petition of THOMAS J. CHUBB of New York N. Y., praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvement in Separating Ore.

It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing arguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next. Any person may oppose this extension. M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE,

WASHINGTON, D. C., May 11, 1871.

On the petition of JOSEPH W. BUDD, of Midland City, Michigan, Administrator of ISRAEL DODENHOFF, deceased, praying for the extension of a patent granted to the said ISRAEL DODENHOFF, on the 18th day of August, 1857, for an improvement in Raking Apparatus for Harvesters.

It is ordered that the testimony in the case be closed on the 18th day of July next, that the time for filing arguments and the Examiner's report be limited to the 28th day of July next, and that said petition be heard on the 2d day of August next. Any person may oppose this extension. M. D. LEGGETT, Commissioner.

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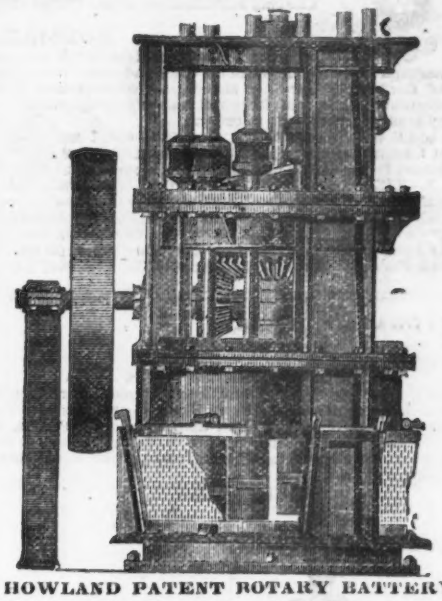

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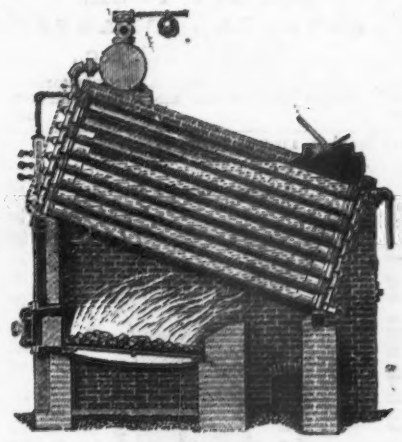

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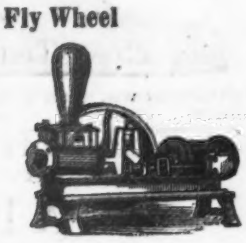

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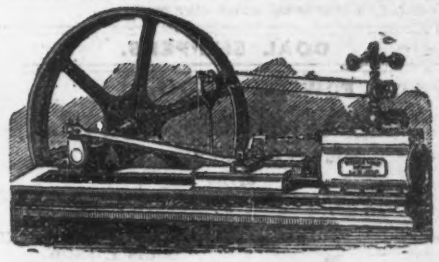

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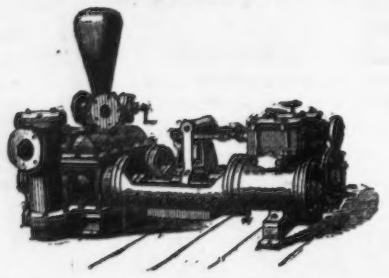

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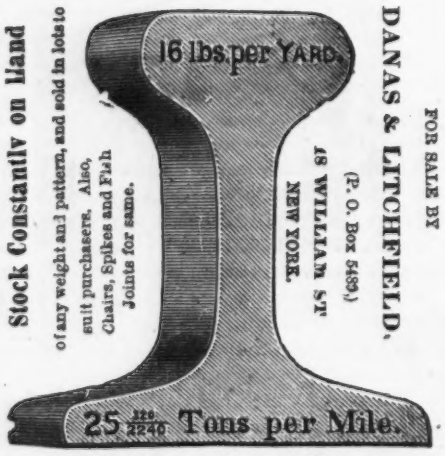
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U. S. PATENT OFFICE,

WASHINGTON, D. C., May, 25, 1871.

On the petition of CHARLES H. SAYRE of Utica, New York, praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvement in Cultivators.

It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing arguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next. Any person may oppose this extension.

M. D. LEGGETT, Commissioner.